CRAIG ZEIDLER STRONG

[C] SITE "A"

[MAPLE MOUNTAIN]

Site Selection, Conceptual Plans and Costs
for
"Site "A" Maple Mountain



## LOCATION

Maple Mountain is 325 miles north of Toronto by excellent roads which will enable it to compete successfully with adjacent U.S. ski resorts. It also has good rail access from Toronto and most important is no more than two hours flying time from Cleveland, Detroit and Chicago which places it in an excellent position to tap the fast growing midwestern United States recreation market.

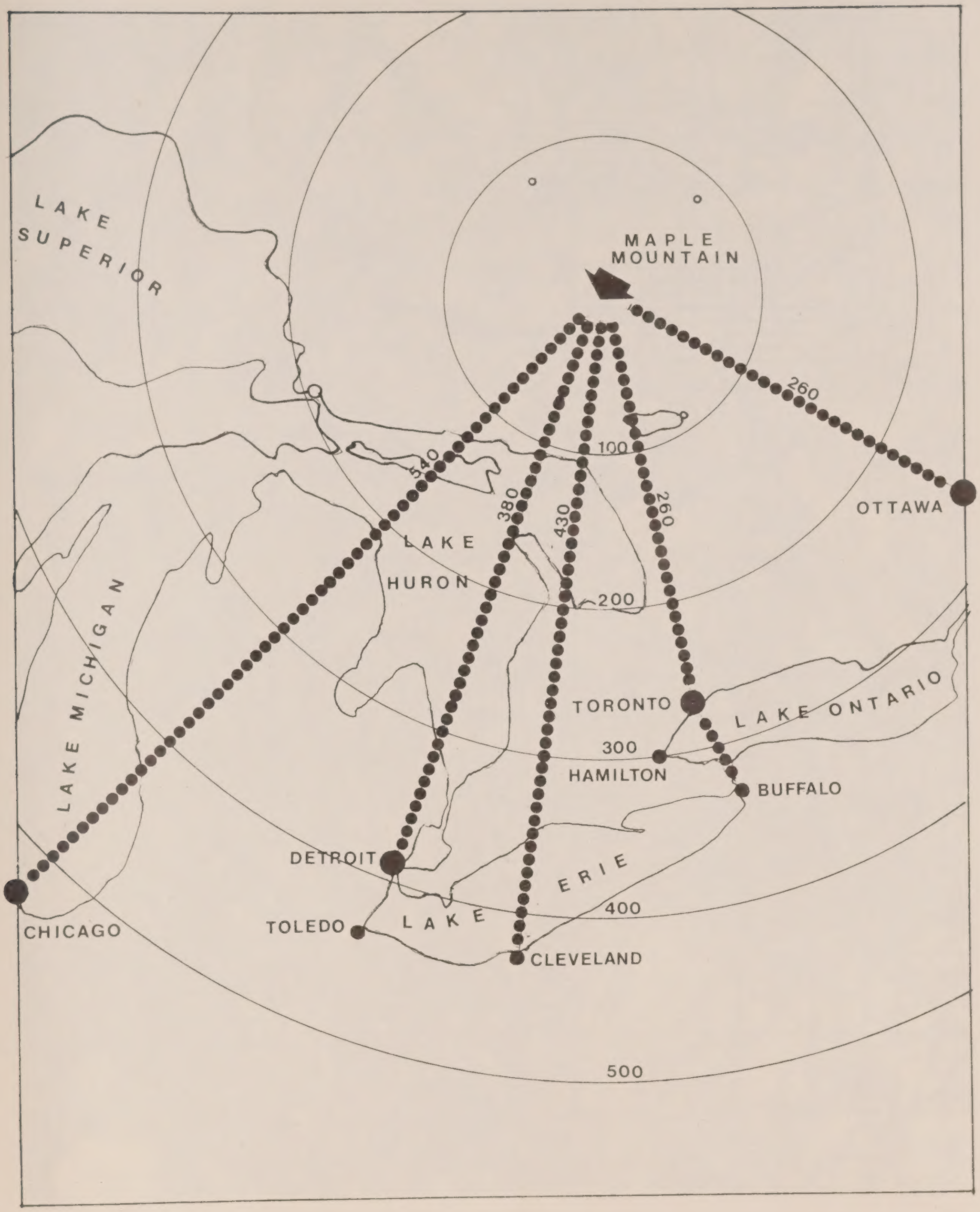
With the construction of a new 21 mile road from Mowat's Landing at the end of Route 558 Maple Mountain Village will be 39 miles away from Haileybury which is at the centre of the Tri-Town area. These communities will therefore be able to benefit economically from Maple Mountain by providing it with a wide range of services, while their residents will have a preferential position for the 1,000 jobs that Maple Mountain is expected to create.

The superb scenic attributes of the area will contribute substantially to the success of the concept. The first of these is Maple Mountain itself with panoramic views of the northern wilderness which must be unequalled in Ontario.

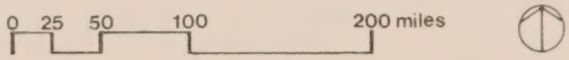
The second is the extensive and very beautiful Lady Evelyn Lake system which will provide opportunities for all kinds of water based activities.



c 1973




# 1. Air Travel Distances




## 2. Regional Context

0 2 5 10 20 miles

August 11, 1972

MAPLE MOUNTAIN PROJECT

PRELIMINARY ANALYSIS OF JOB CREATION

| | | ANNUAL | SEASONAL | TOTAL |
|---|---|---|---|---|
| 1. | Inns: 1 for every 3 beds | 275 | - | 275 |
| 2. | Dormitories: 1 for every 15 beds | 30 | - | 30 |
| 3. | Chalets: 1 for every 14 beds | 200 | - | 200 |
| 4. | Commercial spaces - estimate | 225 | - | 225 |
| 5. | Municipal and maintenance | 30 | 10 | 40 |
| 6. | Trailer park & Camping | 2 | 23 | 25 |
| 7. | Gas Station | 10 | - | 10 |
| 8. | Day Lodges | 4 | 16 | 20 |
| 9. | Skiing | 3 | 62 | 65 |
| 10. | Golfing | - | 5 | 5 |
| 11. | Marina | - | 5 | 5 |
| 12. | Other | 50 | - | 50 |
| | | 829 | 121 | 940 |

## RECREATION

The Maple Mountain region is divided into three major recreation zones.

### Zone 1 - Intensive Recreation

This zone lies in a narrow band between the new access road and the north shore of Lady Evelyn Lake and along the whole eastern face of the Maple Mountain range.

The primary recreational use for this zone will be downhill skiing and preliminary analysis indicates that the first phase of ski development will have a daily capacity of 3,000 skiers. The ultimate capacity of the whole area is probably close to 9,000 or 10,000 skiers per day.

Zone 1 will be the location for the main (and any subsequent) Village development and for trailer and tent camps with washroom facilities, as well as a marina and other structures necessary to serve the whole area.

Related to the Village and other structures will be recreational uses with relatively high capacities and limited area such as golf and tennis, swimming, ice skating and tobogganing.

The various trails for more extensive kinds of activities will originate from or close to the Village.

### Zone 2a - Land-based Extensive Recreation

Zone 2a in the northeast sector of the region is the least scenic of the zones, having been logged in the early 1960's.

The logging roads may be used for snowmobiling in winter and for trail and horseback riding in summer. These roads give access to a few beautiful areas, particularly Anvil Lake which has one of the best natural beaches in the region and could support some boating, fishing and picnicing activities.

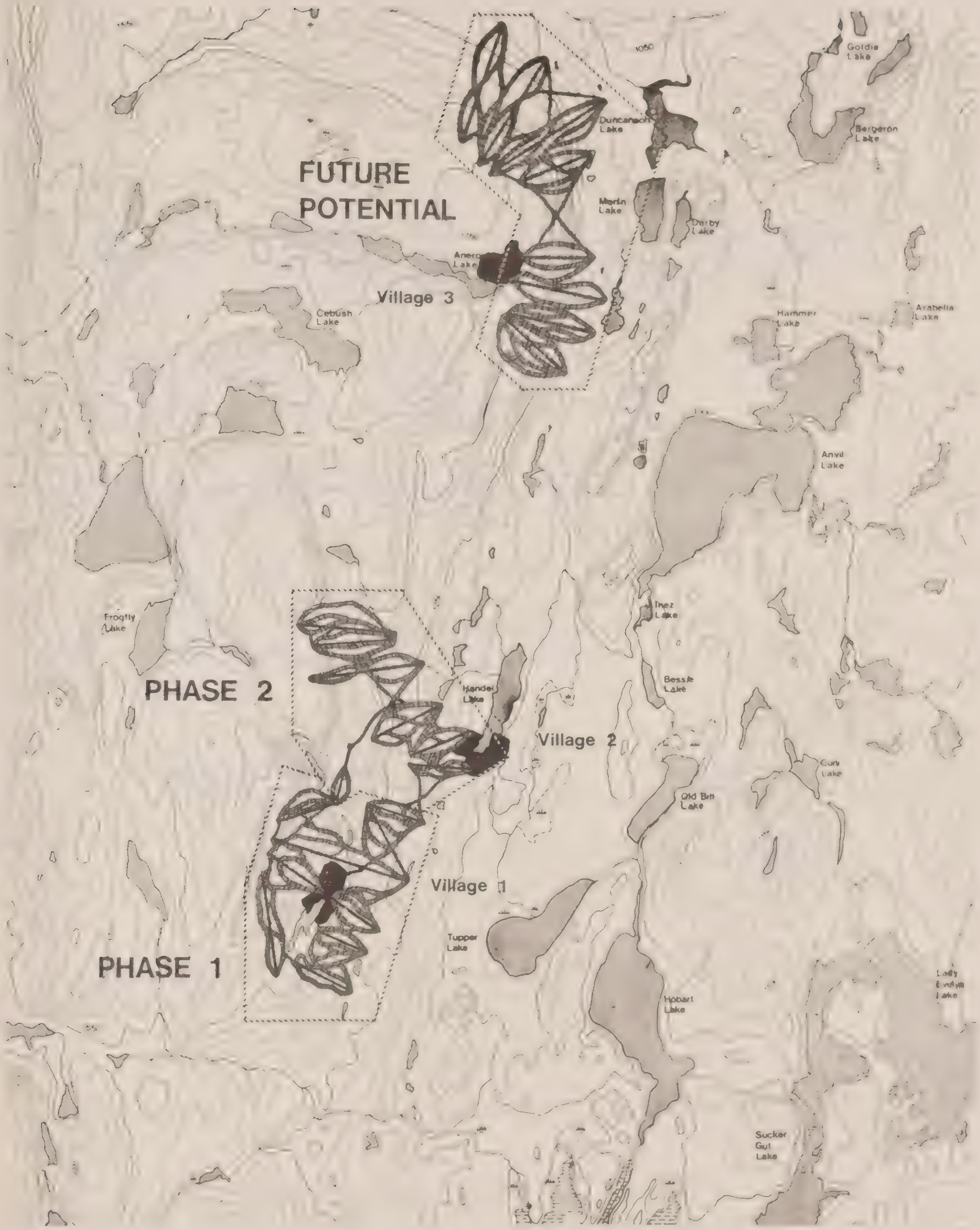

## 3. General Use Zones

1 Intensive Recreation

2a Extensive Recreation, Land based

2b Extensive Recreation, Water based

3 Wilderness Area




# 4. Ski Potential

### Zone 2b - Water-based Extensive Recreation

This very large zone surrounding the Lady Evelyn Lake system will have high capacity for summer activities and will be the counterpart of the winter skiing on Maple Mountain.

Lady Evelyn Lake has some of the best pickerel (walleye) fishing in Ontario and is extensive enough to support power boat cruising and tour boats, waterskiing and sailing.

Selected sites in particularly scenic areas with beaches will be prepared for individual tenting. These sites would be accessible only from the water.

### Zone 3 - Wilderness

This zone, generally in the southern and western parts of the region, has the lowest capacity to support a large number of visitors.

However for a controlled number of the more active visitors it offers incomparable opportunities for wilderness hiking in both summer and winter and for canoeing and canoe tripping.

The primary areas for these activities are the two channels of the Lady Evelyn River to the south and Makobe Lake to the west.

The Lady Evelyn River, which has been designated a Provincial Wild River Park, has excellent speckled trout fishing and a number of very beautiful rapids and waterfalls, which will complement its primary use for canoeing.

Makobe Lake has a very scenic shoreline and extensive natural beaches.

A limited number of sites related to the canoe and hiking trails may be made available for wilderness camping.

VILLAGE OBJECTIVES

1. Maple Mountain Village will use its magnificant site to create one of the great tourist attractions of the world.

2. Maple Mountain Village will be a holiday community for over 3,000 daily guests.

3. Maple Mountain Village will be a source of major employment in this northern region.

4. Maple Mountain Village will offer a full range of recreational activities and commercial facilities for all seasons.

5. Maple Mountain Village will create a lively village atmosphere designed for the pedestrian.

6. Maple Mountain Village will encourage the active and contemplative enjoyment of nature.

7. Maple Mountain Village will not add to pollution and the destruction of our north but will show better ways to cherish and protect it.

8. Maple Mountain Village through initiation by the Government, will create a framework for individual participation in the development of the North.

9. Maple Mountain Village will encourage individual ownership of its chalets and private ownership of its facilities.

10. Maple Mountain Village can be ready for its first visitors in approximately two years after construction is commenced.

## GENERAL

Maple Mountain Village is planned as a lively resort village attracting visitors not only from Ontario but from all over the world.

Railroad and airport facilities are within a radius of approximately 30 miles. A major road for car and bus access will lead right into the centre of the village.

Maple Mountain will be unique in providing such a wide range of things to do at all seasons. It will cater to the gregarious community life as well as contemplative solitude, it will cater to the selective taste as well as the restricted purse. It will attract the old and the young.

## ACTIVITY LIST

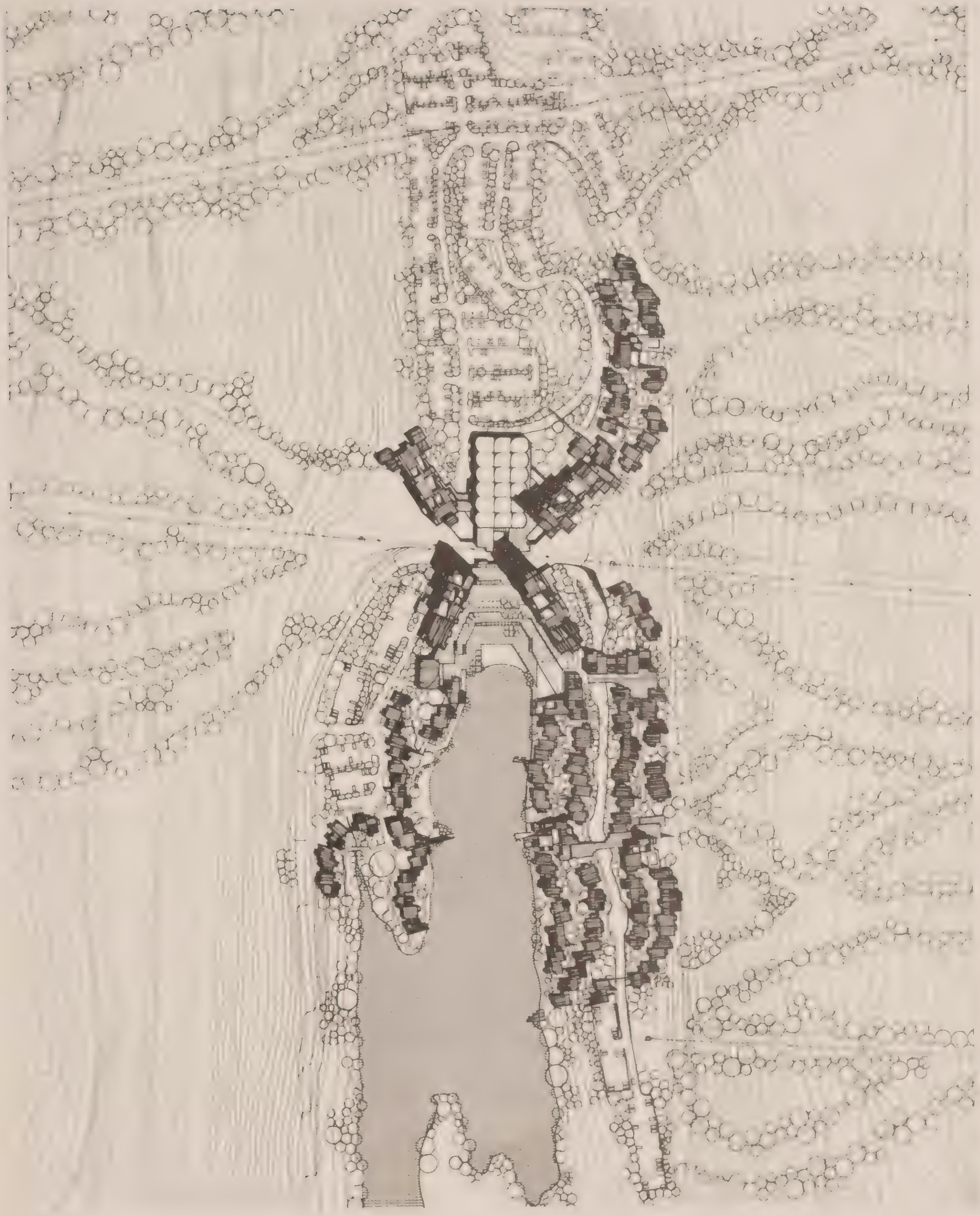
Skiing - Alpine and Cross Country
Skating
Swimming
Boating and Sailing
Hiking
Riding
Golf
Fishing
Ice Boating
Tobaggoning

Drama Workshops
Theatre
Movies
Music Festivals
Arts and Crafts Schools
Exhibitions
Conferences
Nature Walks

Eating
Dancing
Barbequing
Picnics
Entertainments
Folksinging
Bands
Sunbathing
Promenades
Contests
Meditation

The village is scaled for the pedestrian and his enjoyment of urban amenities adjacent to untouched nature. The architecture of Maple Mountain Village has taken full advantage of its site.

In a wind protected location around Upper Lake the village affords spectacular views from all locations.



## 5. Village Plan

0 100 200 500 feet

## SUMMARY

### VILLAGE

The isolated setting demands a minimum guest population of 3,000 to provide the full diversity of activities and facilities and to create a village atmosphere.

The village has been kept compact to achieve a pedestrian quality.

Walking distances are short and all parts of the village can be reached in less than 4 minutes on foot.

The design of the village has attempted to create a lively diversity of activities and a complexity of forms.

The blending of architecture and nature will achieve a holiday spirit embracing activity and social contact, as well as contemplative nodes for rest.

SUMMARY

VILLAGE

The Architecture has tried to transpose the lessons learned from the past into modern technology.

While the construction will be based on a modular prefabricated system, this system is used to create a lively complexity within the village.

New visual experiences will constantly confront the pedestrian in never ending variations, yet the counterpoint to this diversity within will be the unity of forms and materials as seen from the distance.

## SUMMARY

### PEDESTRIAN MOVEMENT

The main objective has been to make all facilities accessible by foot from any part of the village.

The various facilities have been distributed to encourage leisurely promenades through the village and paths leading into the forests.

All car traffic has been kept segregated.

Instead of creating monotonous rows of chalets they are arranged to create sequences of spaces that make a walk through them an exciting experience. The individual visual spaces are usually less than 300 feet as greater length becomes boring for the pedestrian yet land marks are created for easy orientation between spaces.

Walkways

## 6. Pedestrian Movement

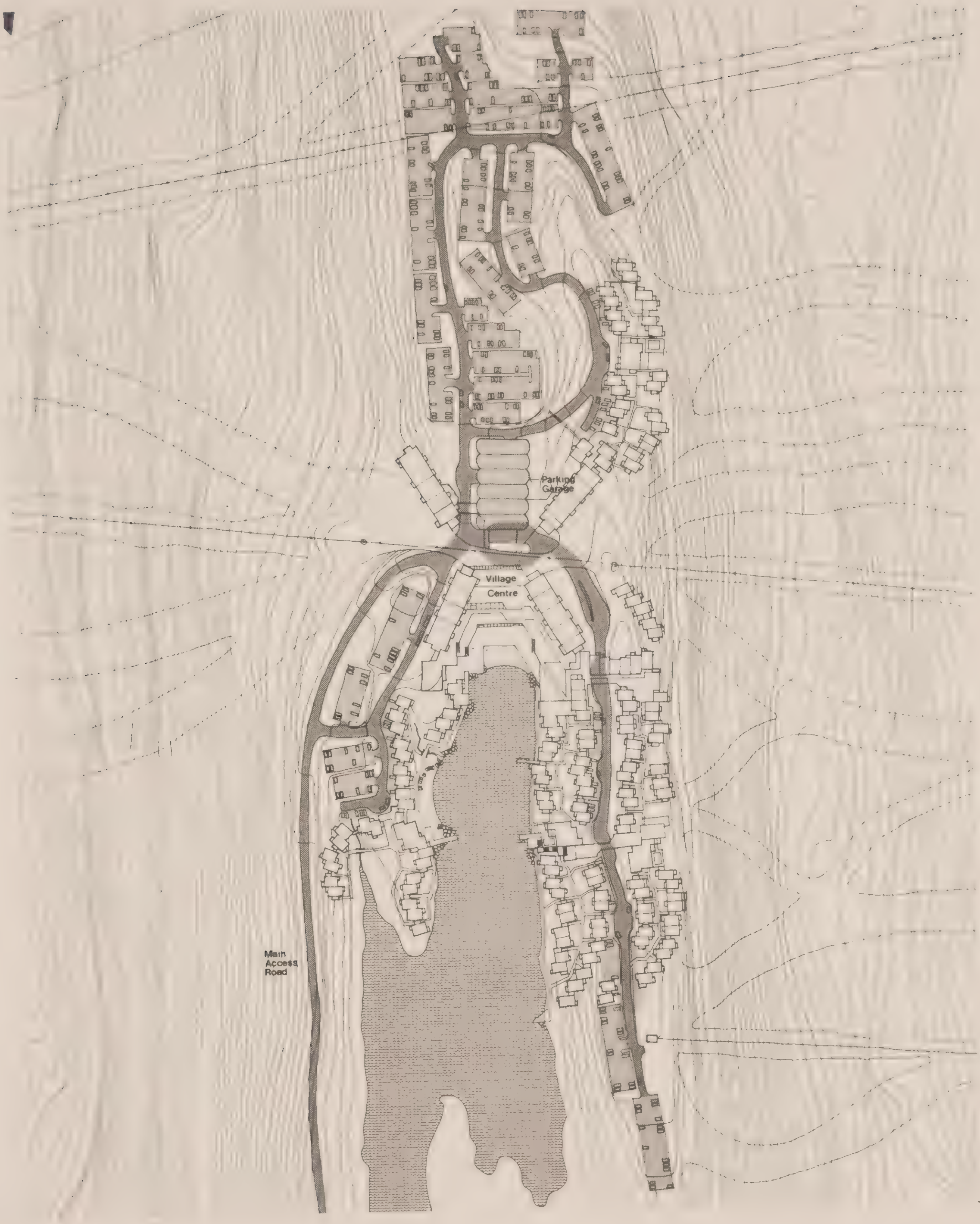
SUMMARY

VEHICULAR MOVEMENT

If the pedestrian is constantly harassed by the car then Maple Mountain Village will not achieve a relaxed holiday atmosphere.

Yet for convenience the village has been designed so that cars and buses can unload at the front entrances of each inn or close to each chalet door.
A road system has therefore been introduced that is separated from the pedestrian traffic by levels and allows the servicing of all facilities. The majority of parking spaces are within 2 minutes walking distance.

Yet the village has been designed where there is no need for the guest to use his car.




Roads

Parking

# 7. Vehicular Movement

SUMMARY

ACCOMMODATION

A mixture of Inns and Chalets has been provided achieving a wide range of choices for accommodation.

The Inns will be relatively small to provide a more intimate atmosphere, they are surrounded by the privately owned Chalets either of town house or apartment style. The integration of Inn and Chalet affords the Inn a broader base of operation and the Chalet owner better services and rental stability. [illegible]

Staff quarters are dispersed to provide better proximity of services.

All units are designed so that change is relatively simple from either Inn or Chalet or staff quarter use. This will permit adjustment to the actual demand and therefore greater financial stability of the total project.

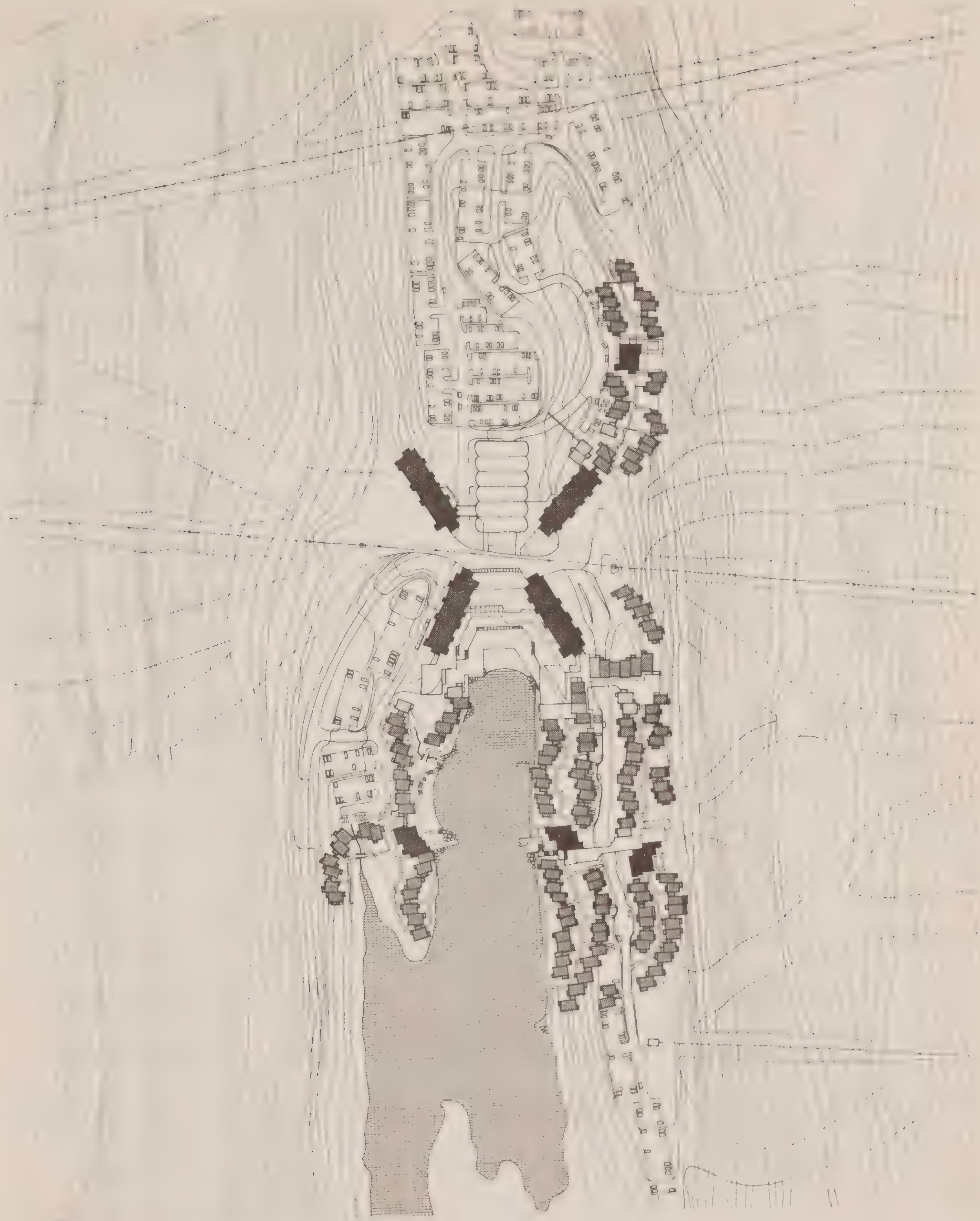
MAPLE MOUNTAIN VILLAGE

Preliminary Construction Costs
of Privately Owned Condominium Chalets
(includes provision for 375 staff beds)

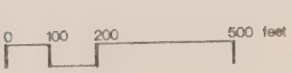
| | | | |
|---|---|---|---|
| 1. | Private Chalets | - 341 units<br>- 1788 beds | $12,600,000 |
| 2. | "Swing" Units | - 108 units<br>- 650 beds | 3,200,500 |

- these may be either privately owned chalets or regular commercial type accommodation, depending on marketing results.

| | |
|---|---|
| GRAND TOTAL | $15,800,000 |




# 8. Accommodation



## SUMMARY

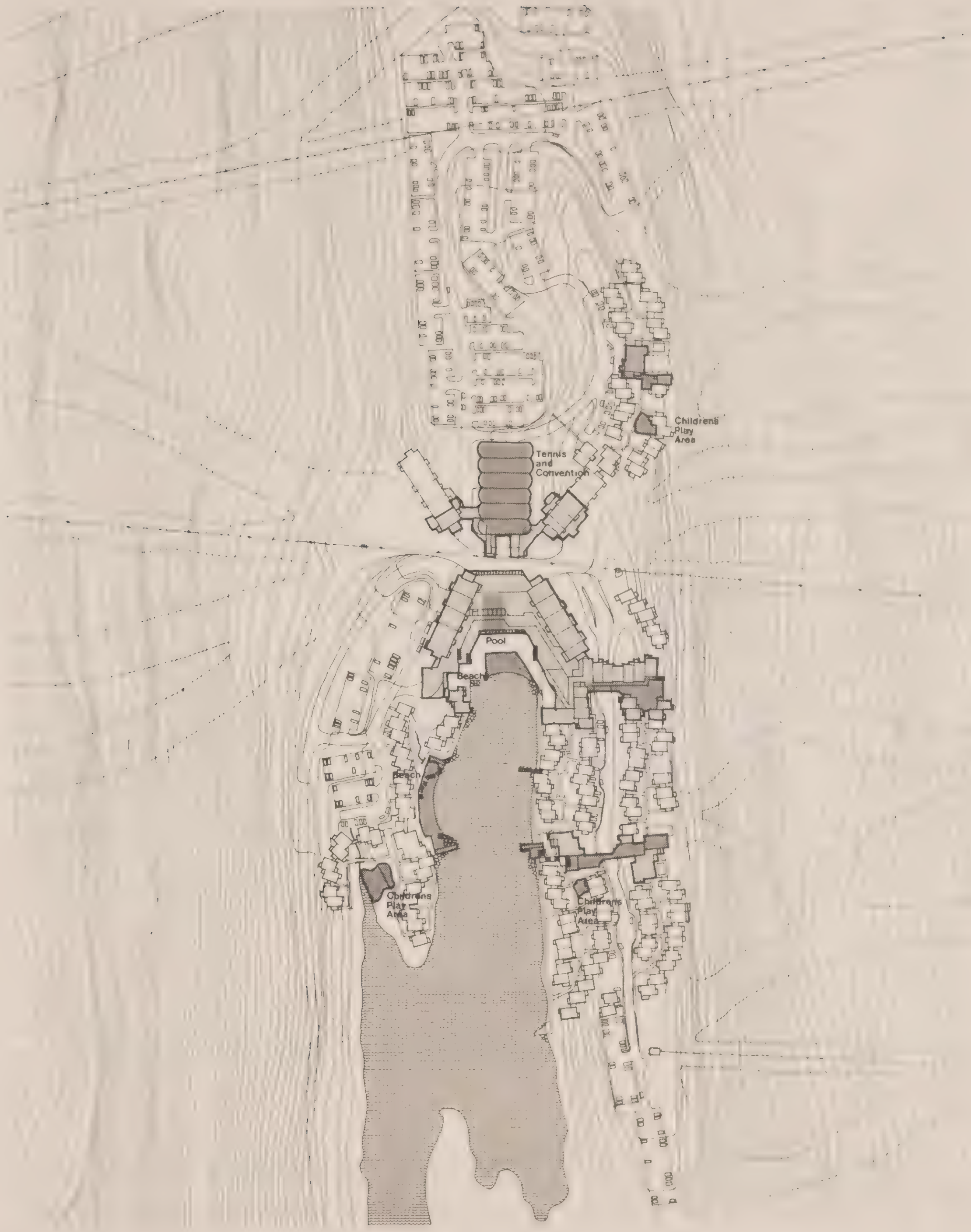
### ACTIVITIES

Activities and facilities have been dispersed to encourage the pleasure of walking through and exploring the village.

The village is planned as one unit and all services as complementary to each other. Planning flexibility will allow for the inevitable future changes to these services.

A concentration of activities has been achieved in the heart of the village. This centre is surrounded by various subcentres within three minutes walking distance.

Skiing, tennis, swimming and sailing are integrated with restaurants, cafes and bars. In a holiday village few people grimly enter into these activities to achieve olympic standards of athletic performance. These activities are done for the sheer enjoyment of being alive. The watching of the action is as vital as the participation.




Public

Commercial

## 9. Activities

0 100 200 500 feet

## SUMMARY

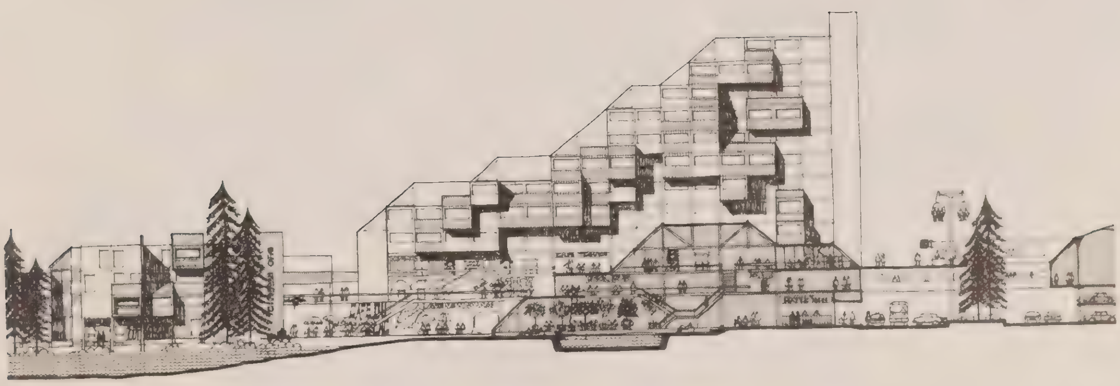
### VILLAGE CENTRE

In the middle of the village a series of interior and exterior spaces are interrelated to allow the villager to view and participate in the life of the village.

In the heart of the centre is an inside heated pool, surrounded by restaurants, bars and casual shopping, opening onto terraces. The view, to the south is into the Upper Lake and to the north is the Ski Street. Above this street, right through the centre of the village moves the chairlift, connecting the base and peak of Maple Mountain. Below the Ski Street runs the auto street to the Inn Lobbies and Chalets.

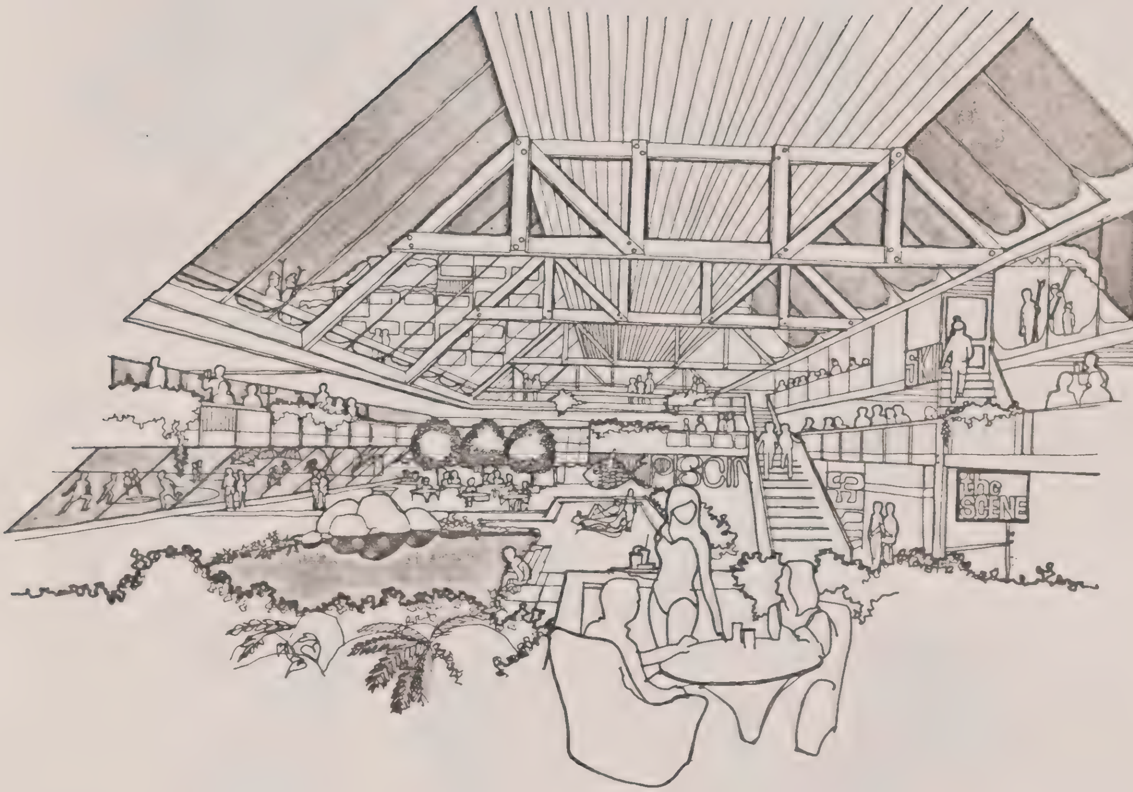
Spaces for summer theatre, conferences and other cultural activities form also part of this centre.

Northern history and achievements will be displayed using the total village centre as an Exhibition area.



## 10. Section / Village Centre

0 20 40 100 feet


the
SCENE

CAFE
CLUB
LIBRARY

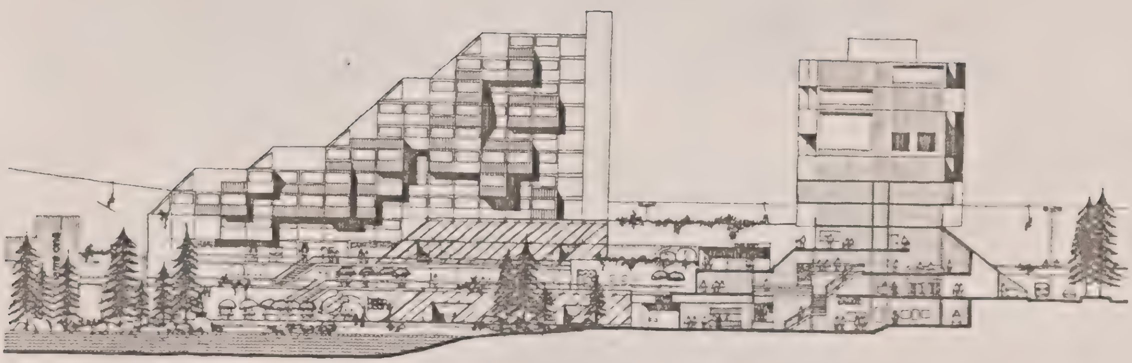
SUMMARY

SHOPPING STREET

From the pool gallery lead shopping streets flanked by stores, restaurants, pubs and convention facilities.

Within these covered streets two storey spaces are created enhanced through the play of natural light.

These shopping streets also serve as protected pedestrian links to the Chalet areas in bad weather, yet parallel to them are outside walkways for sunny weather.



## 11.Section / Shopping Street

## SUMMARY

### CHALETS

The village is developed very densely for economy of services but also not to disturb the surrounding nature.

A clear break between Architecture growing out of rocks and trees and undisturbed nature is achieved. A guest can step out of his Chalet and enter miles of hiking paths through unspoiled wilderness.

Each chalet has a view either down to the Lady Evelyn Lakes or across Upper Lake to the face of Maple Mountain.

The section shows the central car service road and the two pedestrian walk ways between the Chalets.


## 12. Section / Chalets

0 20 40 100 feet

## SUMMARY

### UNIT PLANS

The plans for all living accommodation are based on pre-fabricated modular units. The various types of accommodation such as Inns, chalets, staff quarters, as well as small boutiques and restaurants are built up from the same basic module.

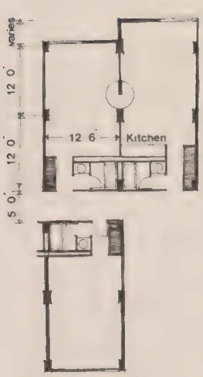
The plans shown here just illustrate a few of the possible variations.


Swing Unit

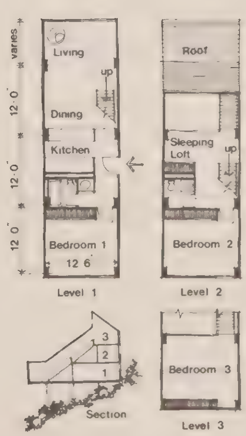

Dormitory Unit


2 Bedroom Unit


1 Bedroom Unit and Studio




Inn Unit




3 Bedroom and Sleeping Loft

## 13. Unit Plans

## SECTION 2 - TECHNICAL REPORT

This section of the report expands on the first section and in addition provides information concerning the more technical aspects of the development. The sub-sections on Skiing and Municipal Facilities have been the responsibility of Triton Engineering (Barrie) Limited and De Leuw Cather respectively.

### SITE SELECTION

Four alternative sites were investigated for the proposed development. These were Lorrain Valley, Beaver Mountain, Rib Lake and Maple Mountain, the general locations of which are shown on Map 2.

Sketch plans were prepared for the first three areas (see Maps 14, 15 and 16) showing the ski hills, other recreation activities and village locations. These plans and Maple Mountain were evaluated against the following criteria:

1. Quality of Ski Hills.

2. Economic Efficiency of Ski Hills.

   Rough estimates of capital cost (lifts and clearing and preparing the runs) have been combined with estimates of


# 14.Lorrain Valley

0 1/4 1/2 1 2 miles


## 15.Beaver Mountain

0 1/4 1/2 1 2 miles

Hill capacity to give a measure of economic efficiency of each area.

3. Character of the Area.

Marketing of the area is likely to stress the unspoiled "wilderness" Northern Ontario, so the site with the least traces of the human hand will be most highly valued.

4. Quality of Village Location.

Factors are good views, sunlight and proximity to a stream or water body.

5. Concentration of Activity.

It is important to find a site where the principal winter and summer activities - skiing, golf, lake swimming at a beach, sailing - can be organized in close proximity to the Village site.

6. Availability of Range of Recreation Activities.

Does the area around the Village site and ski runs have varied recreational capabilities with the necessary capacity to support the expected number of visitors?

7. Accessibility of the Area.

How close is the area to its prime market of Southern Ontario and secondly to Earlton airport?

8. Site Encumbrances.

Is the land owned by the Province or will there be any expropriation problems?

TABLE - ALTERNATIVE SITE EVALUATION

| EVALUATION CRITERIA | LORRAIN VALLEY | BEAVER MT. | RIB LAKE | MAPLE MT. |
|---|---|---|---|---|
| 1. Quality of Ski Hills | 4 | 3 | 5 | 1 |
| 2. Economic Efficiency of Ski Hills | 2 | 3 | 4 | 4 |
| 3. Character of the Area | 4 | 4 | 3 | 1 |
| 4. Quality of Village Location | 3 | 2 | 2 | 1 |
| 5. Concentration of Activity | 3 | 1 | 2 | 2 |
| 6. Availability of Range of Recreation Activities | 4 | 3 | 3 | 1 |
| 7. Accessibility of the Area | 3 | 5 | 1 | 5 |
| 8. Site Encumbrances | 4 | 4 | 3 | 1 |
| | 27 | 25 | 23 | 16 |

1 is best, 5 is worst.

Maple Mountain clearly emerges as the best of the four alternatives, particularly in terms of the quality of the ski hills and the general character of the area which are likely to be the most important factors in attracting visitors to the resort. Maple Mountain has a maximum vertical drop of approximately 1,000 feet while none of the other areas exceeds 750 feet.

Maple Mountain is a true wilderness area while all the other sites bear to some degree the scars of civilization in forms such as Hydro rights-of-way or large scale dams with their resultant disfigurement of the landscape.

## THE ENVIRONMENT

The present topography and surface geology of the Maple Mountain area were formed by the action of the last ice age some 10,000 years ago.

Map 18 shows that the ridges, including Maple Mountain itself, and valleys lie in a SSE direction which was the direction of movement of the glacier in the area. The ice action has exposed and polished the bedrock (a milky white quartzite) in many areas. Overburden on bedrock on the ridge slopes is generally very shallow, about 2 feet, but with some deeper pockets which can only be determined by detailed investigation.

To the east of Maple Mountain in a valley running parallel to it deep deposits of coarse to fine and silty sand have been left by the recession of a glacial lake. About 5 miles further east on the north shore of Lady Evelyn Lake is a glacial outwash deposit of fine and silty sand. These deposits should be good sources of sand and gravel for the construction of the buildings and the major access road.

An interesting geologic feature is the series of well defined eskars on the east of Maple Mountain. These might comprise

one feature along a nature trail which would show how the land was formed.

The most visible features of the area are the forests, predominantly spruce, which cover the landscape and the vast network of streams, rivers and lakes.

The forests have all been logged (except for small inaccessible pockets) probably 60 or 70 years ago, and an area surrounding and to the north of Anvil Lake has been logged again in the early 1960"s leaving a characteristic network of logging trails and young second growth trees among the non-commercial older trees.

The lakes are accessible from route 11 to the east and a few scattered cottages have been built mostly on islands or the shore of Lady Evelyn Lake.

There is a small operating silver mine and associated mining camp of some twenty buildings on Duncanson Lake to the east of the northern end of Maple Mountain. This mine is accessible by a gravel road from Elk Lake to the north.

Consideration should be given to building it into the activities of the resort illustrating the history and early life style of Ontario's north.


1 Lacustrine Deposits
deep coarse to fine and silty sand

2 Outwash Deposits:
fine and silty sand

3 Moraine:
sand, gravel and boulders

Eskers

# 18.Surficial Geology

0 1 2 5 miles

This cursory survey indicates that the ecological systems of the area are relatively stable. However it is recommended that in the next phases of this study detailed ecological studies of the local plant and animal systems be undertaken. These studies will help to make decisions as to what not to do in terms of all aspects of the development from the ski trails, to access roads and construction of the village itself. But more positively they will uncover information which will give unique direction to the development plans.

## RECREATION

### LAND CAPABILITY

This section of the report has been based primarily on the maps of Land Capability for Outdoor Recreation prepared in 1970 for the Canada Land Inventory. Map 19 has selected and generalized information from the CLI and added some information from other sources.

It should be noted the CLI has attempted to classify land according to its capability to support various intensities of recreation use <u>per unit of land area</u>. It has not tried to judge whether one form of recreation or one type of landscape is "better" than any other.

For example the CLI concludes that both Lady Evelyn and Makobe Lakes <u>can</u> support large numbers of tourists (in proportion to their respective total areas) for the purposes of cottaging, camping, swimming, fishing and family boating. This does not mean that each lake <u>should</u> be used for such purposes; before such a judgement can be made factors of need, accessibility and planning must be taken into account.

Similarly the CLI concludes that the Lady Evelyn River is ideally suited for canoeing because of the scenic quality of

# 19. Recreation Capability

| | |
|---|---|
| 4 | Area Type |
| A | Angling |
| B | Boating |
| BE | Swimming |
| C | Canoeing |
| F | Waterfall |
| L | Landform |
| R | Rapids |
| S | Skiing |
| U | Upland Wildlife |
| V | Viewing |

0 1 2 5 miles

its rapids and waterfalls. However the actual number of canoers who can use the River is relatively small.

Our preliminary analysis shows that the Maple Mountain region has the capability of providing for the extent and variety of recreation needs of the planned first phase development. Further study will be required to identify more precisely the supporting capability of the various recreation resources, the precise mix of activities and the physical facilities which must be built to enable their use.

Map 19 has classified the region into areas with distinct recreational capabilities. A description of each of these areas follows:-

AREA 1

This area lies along the eastern face of Maple Mountain and is about 6 miles long with a width which varies between ½ mile and a mile.

Alpine skiing will be its primary recreational function and it has an ultimate capacity of approximately 10,000 skiers per day.

Secondary activities will be viewing from the top of the mountain, which will be particularly important in the summertime, rock climbing, shorter walks and picnicing. The trails in this area will link up with trails in other areas for cross country skiing, snowshoeing, wilderness hiking and horseback riding. There will be some opportunities for fishing in the streams and upland lakes and for viewing of upland game.

AREA 2

The primary activities in the Lady Evelyn Lake area will be family boating, pickerel fishing and swimming which can support a large number of users. These activities will be the summer counterpart of winter skiing in terms of the extent of use by visitors.

Secondary activities may include camping and picnicing on the shores and islands of the Lake, viewing the unique sand finger islands at Obowanga and Waswaning Narrows and some limited waterfowl viewing.

AREA 3

This valley area, immediately to the east of Maple Mountain, has no dominant recreation resource. There are however some areas on Hobart Lake which are suitable for camping, which

should be used for organized tent and trailer camps with wash rooms since the new access road will pass close by.

There are a number of smaller lakes and streams in the area which can support some small scale boating and fishing, while Anvil Lake has good stretches of natural beach. The eskars described previously fall within this area and should be integrated with a nature trail.

AREA 4

This area in the northeast of the region has no dominant characteristics and has fairly broken terrain with a number of small lakes. It has been logged in the early 1960's and the logging trails could be used for snowmobiling. There are limited opportunities for fishing and the viewing of upland wildlife.

AREA 5

These areas are similar to Area 4 but with somewhat more opportunity for camping and swimming on some of the small lakes. These, however, are located at some distance from location of the Village and should probably be retained as wilderness.

AREA 6

This upland area surrounding Maple Mountain on the north, west and south provides the best opportunities for viewing upland wildlife. However, compared to other parts of Ontario there is not a large concentration of wildlife which is also restricted almost wholly to moose and bear.

The focus for this activity will probably be the Maple Forest immediately to the west of the first phase ski area and Aneroid and Abush Lakes as well as the triangular lake downstream of Frogfly Lake.

The latter is about a mile away from the day lodge at the top of the mountain and if the road serving it were extended this lake may serve as the starting point for wilderness canoe tripping leading eventually to the Lady Evelyn River.

The area will also be the principal location for cross country skiing, snowshoeing and hiking because of the interesting and varied topography and the number of look out points giving panoramic views.

AREA 7

This very beautiful area is centered around Makobe and Grays Lake which have very fine and extensive natural beaches. The area could support the same intensity of use for family boating, fishing, camping and swimming as the Lady Evelyn Lake area. However there does not appear to be a need for additional facilities of this type and because the area is realtively inaccessible it is recommended that it be restricted to wilderness hiking and canoeing with controls on the number of visitors at anyone time.

AREA 8

The North and South Channels of the Lady Evelyn River as they come into Lady Evelyn Lake drop down over about a dozen rapids and waterfalls through wild and lovely terrain.

The river also has some of the best speckled trout fishing in Ontario.

For these reasons the Lady Evelyn has been designated a Provincial Wild River Park.

It will be the focus for wilderness canoe tripping and white water canoeing with the number of visitors engaging in the activities being controlled.

## VILLAGE SITE SELECTION

The number of alternative sites for Maple Mountain was limited by the decision as to which area should first be developed for skiing. This area chosen is indicated as Phase I on Map 4 showing Maple Mountain's overall ski potential.

Subsequently a number of factors were investigated which will have a bearing on the evaluation of the four possible village sites which had been identified.

The four sites were as follows:

1. At the top of Maple Mountain - approximate elevation 2,000 feet.
2. At the midpoint to the north of a small lake - approximate elevation 1,500 feet.
3. At the bottom of ski lifts a, b, c and d on a plateau - approximate elevation 1,200 feet.
4. At the south end of Handel Lake - approximate elevation 1,050 feet.

The first factor to be investigated was the type of forest covering each site.

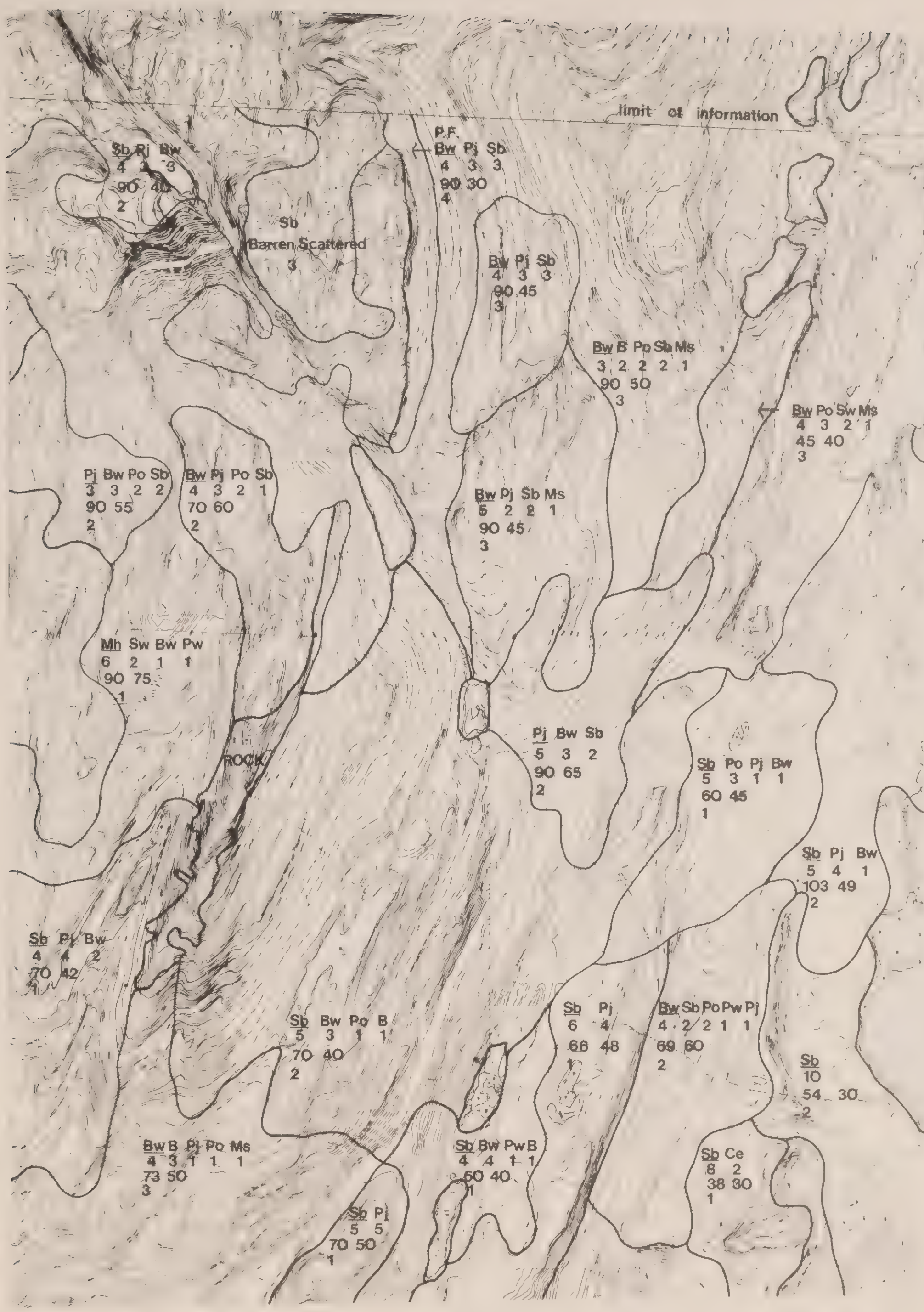
FOREST COVER

The source of the information for Map 20 comes from the Forest Resources Inventory prepared by the Ontario Department of Lands and Forests (Ministry of Natural Resources) for Rorke Township in 1959.

This map clearly shows that Site 1 would have the most pleasant forest environment being surrounded by a stand of 75 foot Hard Maples in which are mixed white spruce and white birch. This stand of about 400 acres, which is more characteristic of Southern Ontario conditions is probably a unique resource as far north as this and should be carefully nurtured and preserved.

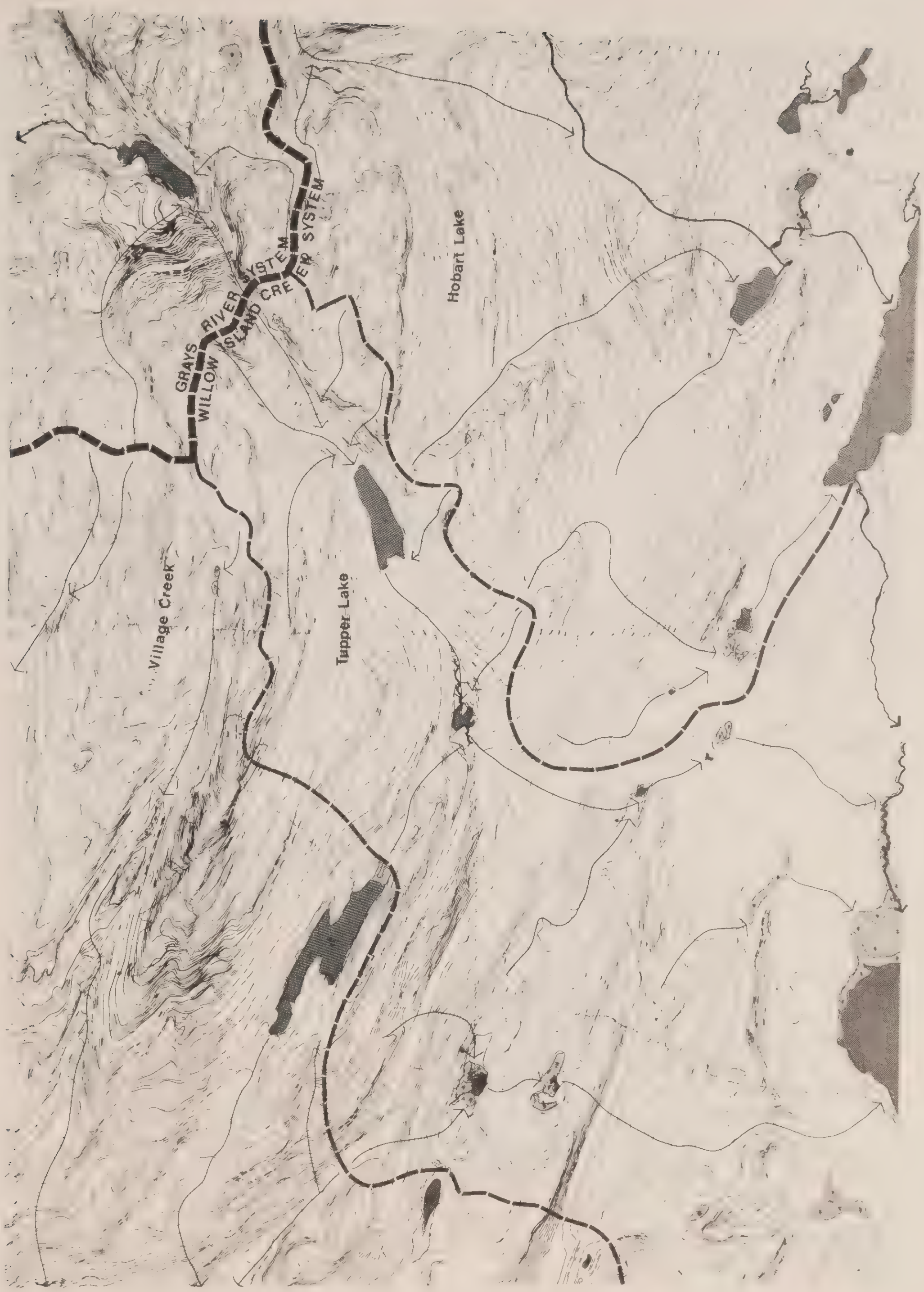
The other three sites are in areas where black spruce predominates with white birch as a secondary species. Each of the secondary locations would have an acceptable forest environment.

SURFACE WATER



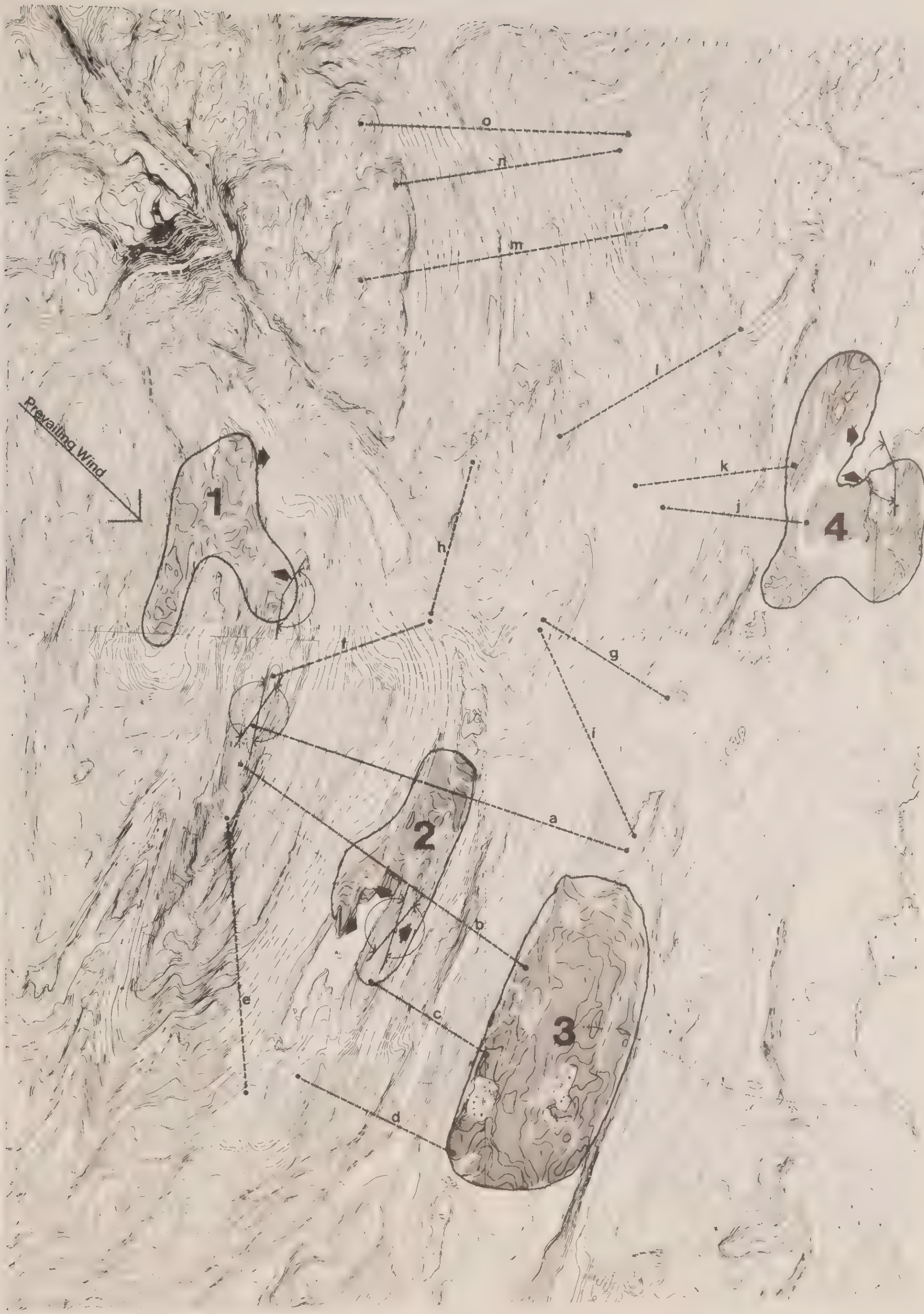

# 20.Forest Cover

| | | | |
|---|---|---|---|
| P. F. | Protection Forest | Pw | White Pine |
| Sb Pj | Species Composition | Pj | Jack Pine |
| 5 5 | Percent Each Species | Sb | Black Spruce |
| 70 50 | Age, Height | Sw | White Spruce |
| 1 | Soil Class | B | Balsam |
| | | Ce | Nothern White Cedar |
| | | Mh | Hard Maple |
| | | Ms | Soft Maple |
| | | Po | Poplar |
| | | Bw | White Birch |




Major Watershed
Minor Watershed
Lake or Pond
Swamp
River or Stream
Drainage Channel

# 21. Surface Water




1 Potential Village Site

a Ski Lift Line

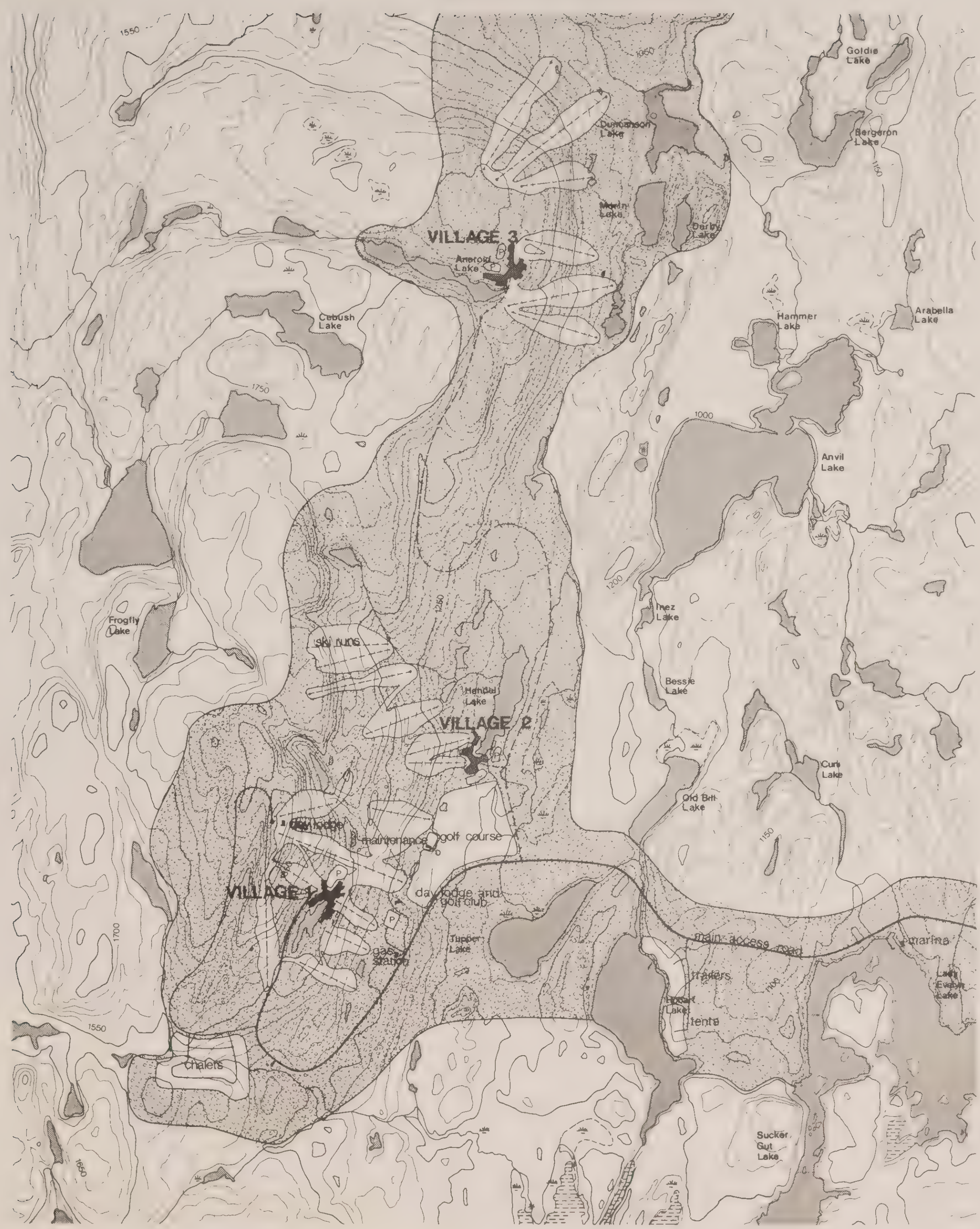
Slopes Less Than 10 %

Near Views

Distant Views

# 22.Village Location Analysis

0 500 1000 3000 feet




## 23.Development Plan

TABLE 1
SUMMARY, MAIN VILLAGE FACILITIES

| | | AREA IN SQ.FT. |
|---|---|---|
| 1. | Accommodation | 810,870 |
| 2. | Commercial | 156.000 |
| 3. | Municipal Services | 6,500 |
| 4. | Administration | 2.500 |
| 5. | Other Facilities | 125,000 |
| 6. | Parking | 615,000 |

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TABLE 2
ACCOMMODATION

| A. VISITOR | BEDS PERCENT | BEDS NUMBER | BEDS PER ROOM OR UNIT | NO. OF ROOMS (R) OR UNITS (U) |
|---|---|---|---|---|
| 1. Inns | | | | |
| a. Highest Rates | 2.5 | 81 | 2.5 | 32 R |
| b. Medium Rates | 11.0 | 358 | 2.5 | 143 R |
| c. Family Rates | 9.5 | 309 | 2.5 | 123 R |
| d. Dormitories | 2.0 | 65 | 4.0 | 16 R |
| SUB-TOTAL | 25.0 | 812 | - | 314 R |
| 2. Chalets | | | | |
| a. Apt. Types | 40.0 | 1300 | 5.0 | 260 U |
| b. Townhouse Types | 15.0 | 488 | 6.0 | 81 U |
| SUB-TOTAL | 55.0 | 1788 | - | 341 U |
| 3. "Swing" Units which can be used either as: | | | | |
| a. Inn Rooms | | | 2.5 | 260 R |
| OR | | | | |
| b. Chalet Units | | | (6.0) | (108 U) |
| SUB-TOTAL | 20.0 | 650 | - | - |
| TOTAL | 100.0 | 3250 | - | - |

| B. STAFF | BEDS PERCENT | BEDS NUMBER | BEDS PER ROOM OR UNIT | NO. OF ROOMS (R) OR UNITS (U) |
|---|---|---|---|---|
| 1. Single | | | | |
| a. Chalets | 25.0 | 187 | 4.0 | 47 U |
| b. Dormitory | 50.0 | 375 | 4.0 | 94 R |
| SUB-TOTAL | 75.0 | 562 | - | - |
| 2. Married | | | | |
| a. Chalets | 25.0 | 187 | 2.0 | 100 U |
| TOTAL | 100.0 | 750 | - | - |

TABLE 2 - CONTINUED......

NOTES

1. Staff chalets provide essentially the same accommodation as visitor chalets and could therefore be used for visitors if actual live-in staff should fall short of estimates. If this is a reasonable policy then staff accommodation should be distributed throughout the main village rather than concentrated in any one location.

   From an operational standpoint as shown for example at Snowmass and Vail there are advantages in spreading the staff throughout the development. These advantages are social, managerial, supervisory.

2. The total number of visitor rooms will be 314 or 574 if all the "Swing" units are used as rooms.

   The total number of chalets will be 341 or 449 if all the "Swing" units are used as chalets.

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TABLE 3

ACCOMMODATION AREAS FOR 3,250 VISITOR BEDS, 750 STAFF BEDS

| TYPE OF ACCOMMODATION | AREA PER R OR U SQ.FT. | VISITORS NO. OF R OR U | VISITORS SQ.FT. | STAFF NO. OF R OR U | STAFF SQ.FT. | TOTAL NO. OF R OR U | TOTAL SQ.FT. |
|---|---|---|---|---|---|---|---|
| 1. Inns, high [1] | 500 | 32 R | 16,000 | - | - | 32 | 16,000 |
| 2. Inns, Medium [1] | 460 | 143 R | 65,780 | - | - | 143 | 65,780 |
| 3. Inns, low [1] | 430 | 123 R | 52,890 | - | - | 123 | 52,890 |
| 4. Dormitories [2] | 300 | 16 R | 4,800 | 94R | 28,200 | 110 | 33,000 |
| 5. Chalets, Apts. [3] | 1000 | 260 U | 260,000 | 100U | 100,000 | 360 | 360,000 |
| 6. Chalets, Townhouses [3] | 1200 | 81 U | 97,200 | 47U | 56,400 | 128 | 153,600 |
| 7. Swing Units [3] (Assumed as Chalets) | 1200 | 108 U | 129,600 | - | - | 108 | 129,600 |
| TOTAL | - | - | 626,270 | - | 184,600 | - | 810,870 |

NOTES

1. These areas include an allowance for corridors, stairs, elevators, maids' storage areas, etc., within the accommodation wing of each inn. They do not include the main lobby, administrative offices, restaurants, bars, boutiques, convention and recreation facilities. For the latter see Table 4, Item A.

2. Includes an allowance for circulation space, limited public space (dining and lounge), kitchenette and storage space.

3. Includes common circulation and storage space.

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TABLE 4
SUPPORTING FACILITIES

| WITHIN MAIN VILLAGE | AREA IN SQ.FT. | |
|---|---|---|
| **A. COMMERCIAL** | | |
| 1. Food; various categories (including one space 4,000 sq.ft. suitable for banquets) | 40,000 | |
| 2. Entertainment | | |
| - Bars / Beer Halls ) | | |
| - Night Clubs / Discotheques) | 11,000 | |
| - Theatres - 1 Large or 2 Small | 4,000 | |
| SUB-TOTAL | 15,000 | |
| 3. Goods | | |
| - Groceries and Specialty Food | 14,000 | |
| - Clothing Stores / Boutiques | 14,000 | |
| - Sports Shop (Skis, Fishing, Tennis, Etc.) | 10,000 | |
| - Gift Shops, Specialty Shops | 10,000 | |
| - Drugstore | 6,000 | |
| - L.C.B.O. & Brewers Retail | 6,000 | |
| SUB-TOTAL | 60,000 | |
| 4. Services | | |
| - Ski School ) | | |
| - Barber / Hairdresser) | | |
| - Cleaning & Laundry ) | | |
| - Babysitting ) | 16,000 | |
| - Health Club / Saunas) | | |
| - Ski Rental, Repair ) | | |
| - Bank ) | | |
| 5. Other | | |
| - Inn Lobbies, Administrative Offices | 10,000 | |
| - Meeting and Recreation Rooms at Inns | 15,000 | |
| SUB-TOTAL | 25,000 | |
| TOTAL COMMERCIAL | | 156,000 |
| **B. MUNICIPAL SERVICES** | | |
| 1. Clinic | 2,000 | |
| 2. Fire / Police | 4,000 | |
| 3. Post Office | 500 | |
| TOTAL MUNICIPAL | 6,500 | 6,500 |

TABLE 4 - CONTINUED......

| | | | AREA IN SQ.FT. | |
|---|---|---|---|---|
| C. | ADMINISTRATION | | | |
| | 1. Maple Mountain Corp. | | 2,500 | 2,500 |
| D. | OTHER FACILITIES | | | |
| | 1. All purpose space for Drama, Music, Conventions, Tennis | | 30,000 | |
| | 2. Structure over Village Square | | 15,000 | |
| | 3. Childrens Playground | | 10,000 | |
| | 4. Tennis Courts:8 (4 Courts: 120' x 210') | | 50,000 | |
| | 5. Skating Rink (on Village Lake) | | 20,000 | |
| | TOTAL OTHER | | 125,000 | 125,000 |
| E. | PARKING SPACES | | | |
| | 1. Visitor, long term (Assume average group size is 2.0 and 80% arrive by car) | 1300 spaces | 390,000 | |
| | 2. Visitor, daily - 500 additional spaces to be provided at base of hill | 250 spaces | 75,000 | |
| | 3. Staff | 500 spaces | 150,000 | |
| | TOTAL | 2050 spaces | 615,000 | 615,000 |

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TABLE 5
SUPPORTING FACILITIES

OUTSIDE MAIN VILLAGE

| | | |
|---|---|---|
| 1. Day Lodges | | |
| a. at elevation 2,000 | | 3,000 sq.ft. |
| b. at elevation 1,000 (This will double as the Golf Club in Summer) | | 5,000 sq.ft. |
| 2. Maintenance | | |
| a. Building - for ski hills, golf course, etc. | | 15,000 sq.ft. |
| b. Yard (excluding building) | | 100,000 sq.ft. |
| 3. Gas and Service Station (Total Site: 1 Acre) | | 8,000 sq.ft. |
| 4. Ski Facilities | | |
| a. Ski Trails, Alpine | | 175 Acres |
| b. Ski Lifts | | - |
| 5. Golf Course | | |
| a. 18 Hole | | 120 Acres |
| 6. Marina | | |
| a. Building | | 5,000 sq.ft. |
| b. Slips (for power boats and sail boats) | | 100 slips |
| 7. Stables (for 50 horses) and Barn | | 7,000 sq.ft. |
| 8. Riding, Hiking, Cross Country Skiing, Snowshoeing Trails | | 100 Miles |
| 9. Camps | | |
| a. Trailer | 100 Spaces | 30 Acres |
| b. Tent | 100 Spaces | 20 Acres |
| 10. Single Chalet Area | | |
| a. 100 Chalets | | 100 Acres |

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TABLE 6

ACTIVITIES - Preliminary / 3

| Activity Description (Required to serve village with 3,000 beds and local population) | Quantity (Acres, Miles, Etc.) | Daily Capacity | Capital Cost (000) | No. Staff Required | Duration |
|---|---|---|---|---|---|
| A. WINTER | | | | | |
| 1. Skiing, downhill. Assume heavy orientation toward novice and intermediate skiers. (25% novice, 50% intermediate, 25% expert) | 200 Acres | 3,000 Skiers | | | |
| 2. Skiing, crosscountry (Maximum length Olympic Competition: 50 KM) | 30 Miles | | | | |
| 3. Snowshoeing | 15 Miles | | | | |
| 4. Snowmobiling (Not within Ownership) | | | | | |
| 5. Sleighrides | On Roads Golf Course | | | | |
| 6. Ice Boating | On Lake | | | | |
| 7. Ice Fishing | On Lakes | | | | |
| 8. Skating - Uncovered | 1 Rink Hockey Size | | | | |
| 9. Curling - Covered | 6 Sheets | | | | |
| 10. Tobogganing | | | | | |
| 11. Bobsled / Luge Run | 1 Luge Run | | | | |
| 12. Skijoring | On Roads Lakes | | | | |
| 13. Skijumping | 1-M Jump | | | | |
| 14. Excursion Rides by Bombardier | | | | | |
| 15. Indoor Swimming Pool(s) | #6 | | | | |
| 16. Indoor Tennis | 4 Courts | 80 Persons | | | |

TABLE 6 - Continued......

ACTIVITIES - Continued......

| Activity Description (Required to serve village with 3,000 beds and local population) | Quantity (Acres, Miles, Etc.) | Daily Capacity | Capital Cost (000) | No. Staff Required | Duration |
|---|---|---|---|---|---|
| B. SUMMER | | | | | |
| 1. Swimming (in pools). Same pools can be used as for winter activities, covered or uncovered. | | | | | |
| 2. Swimming (Lakes) | | | | | |
| 3. Waterskiing | | | | | |
| 4. Sailing | | | | | |
| 5. Boating, Power | | | | | |
| 6. Canoeing, white water | | | | | |
| 7. Canoeing, on lakes and rivers (Voyageur routes) | | | | | |
| 8. Fishing (including excursions by plane) | | | | | |
| 9. Golf | 18 hole course | | | | |
| 10. Tennis - | 8 Courts (4 Covered) | 160 Persons | | | |
| 11. Hiking and Nature Trails (Use snowshoe Trails) | | | | | |
| 12. Horseback Riding (Use snowmobile trails) | | | | | |
| 13. Bicycling (Use Roads and Crosscountry skiing trails) | | | | | |
| 14. Picnicking (To be associated with 7, 11, 12) | | | | | |
| 15. Sightseeing (Old Mines, Historic Sites, Buildings) | | | | | |
| 16. Hayrides (See Winter Sleighrides) | | | | | |

## VILLAGE

### THE SIZE OF THE VILLAGE

From an investigation of other existing and proposed resorts it appears that in an isolated village setting a guest population of 3,000 would be the minimum required to provide the necessary diversity of related support facilities. These facilities are required to create a true village character rather than the artificiality of an isolated resort hotel. It is also evident that beyond a certain size - and this figure probably would be 6,000 to 7,000 - the village would cease to function as a pedestrian precinct. The development of a village should be stopped at this point.

If the resort became so successful that more facilities were needed it would be advisable to commence a new village. However, one should not make the mistake of allowing these villages to be contiguous as this would create a feeling of sprawl. A natural separation should be maintained between these villages so that they only occasionally can be seen as distant points of interest between the trees.

The concept of the Swiss Village or the old medieval town probably is appropriate for this type of development. In

these settlements buildings are densely arranged and an abrupt change between building and nature is achieved.

DISTANCES

The village has been kept very compact to retain its pedestrian quality. The arrival point is at the village centre which contains a wide range of activities. Yet, walking distances are short and every part of the village can be reached from this point in less than four minutes on foot. All major areas of the complex as well as the chalets and inns at the centre can be reached by ramps and stairs or by elevators. However in the outer village areas the chalets are one to three stories high with no elevators. The experience in other North American developments of this type has shown the salability of this type of accommodation.

INDIVIDUALITY

The objective is to create the complexity and reality of a lively village rather than an artificial resort hotel atmosphere. In assessing the opinion of many guests at various resorts it appears that the greater the complexity of activities and the more individual their management, the more successful will be the atmosphere created.

Aspen in its variety is a perfect example of such a resort. Therefore individual management of most of the commercial facilities appears to be more successful than chain or franchise operations. This by no means rules out these operations, but implies that they should not be the only kind. The small individual operator can be very successful in a resort of this type. For example the planned ski resort at Vail, Colorado reports that despite their numerous individual stores only one store has failed during their nearly ten years of operation. Yet in planning the future of such a village one must allow for the possibility of failure of an individual facility and its replacement with a viable alternate without affecting the overall success.

This individual involvement has been allowed for in the planning of the village.

ATMOSPHERE

The key to the success of the village will be in achieving a holiday spirit. Pleasant corners must be created where one is invited to sit down and talk, meet people and watch the passing scene. Space manipulations that will encourage

such casual meetings have been deliberately sought after. Activities must be built around these nodes.

Spatial planning also must cater to various moods. Some of the guests will want to come to the north to escape the bustle and pressure of their daily lives and be alone within the magnificent northern nature. The choic must be given to them to step out of their chalets and be in unspoiled nature away from the crowd.

Conversely other people are longing for social contact and activities. This must be achieved within a relaxed atmosphere.

THREE GENERATIONS OF SKI RESORTS

Maple Mountain Village will be a third generation ski resort.

The development of major resorts started during the last century. The spas of Switzerland and Europe developed rapidly as resort areas, for summer as well as winter use. The enjoyment of nature and the leisurely comfort of the resort establishments were the initial attractions. The development of skiing provided for these areas an additional activity and an impetus of growth during the last decades.

However in North America the winter resort basically started with the activity of skiing. Living facilities were added as a necessary evil in a rather haphazard way.

Vail was one of the first planned resort villages in which attention was given to achieving an integrated architectural quality and a holiday atmosphere.

The developers of the third generation of resorts now realizes that skiing alone is not the only activity that can support such a village. If the village and the surrounding countryside can provide the right atmosphere and a diversity of activities many of the guests, as is the case in many Swiss resorts, may not even ski.

The availability of spring, summer and fall activities at Maple Mountain will assure all year round occupancy and avoid the critical mistake of many winter resorts that are now attempting to add summer activities to avoid the problems of an "off season".

The common ski resort is a place where appeal is almost exclusively to the young, older people who often have much more money to spend stay away because there is really very little for them to do.

The typical southern resort is a place that appeals exclusively to the elderly.

Maple Mountain will be a winter resort with strong appeal for older people and a summer resort with equal power to attract young people.

In fact the type of services available will make portions of Maple Mountain an attractive retirement community, which would be beneficial to the village as it would provide a constant base population.

## THE RESORT CONDOMINIUM CONCEPT

### What is a Condominium?

It is a housing unit to which the purchaser has title, while the land on which it stands is owned in common with other residents in the same building or development. The owners are all members of an association which runs or contracts for all aspects relating to the areas of common ownership e.g. maintenance, garbage removal etc.

### Why in a Resort Setting

This is in response to the demand for second homes which has been realizing extraordinary growth in both Europe and in the United States. The jet age has made it possible for people to travel considerable distances for their holidays, away from the local environment, and to enjoy a more varied and exotic range of activities. The attractiveness of owning one's own house, villa, cottage, chalet, (term it what you will) revolves around several factors, the most significant being that of pride of ownership, of potential value appreciation over time, of year-round utility with possible rental income when not in use by the owner, and of year-round property management contracted for by the residents' association.

### How Many Such Developments have been Built and Where are They?

In the United States it is estimated that over 300 resort condominium projects are in use or under construction, while in Europe, there are possibly as many. In Canada, it should be noted, there are none at this stage although several are on the drawing boards including Maple Mountain.

cont.......

The locations of these developments vary from the Florida beaches to the Adirondack region and from the Colorado mountains to the Pacific shoreline, and in Europe they stretch along the entire southern coast of Western Europe from Lisbon to Trieste, with many others centered in the ski towns of the Alps.

Most developments are characterized by the availability of primary activities related to only one season of the year i.e. summer beaches and water sports, or winter skiing, but, and this is true largely of inland developments, attempts are being made to introduce the year-round aspect to existing and future proposals. This is the major aim of Maple-Mountain, where the site can offer viable 12 month use from one village site.

Some examples of Capital Tax Implications, assuming the property is treated as an investment property.

| | | | |
|---|---|---|---|
| (1) | Original cost of the Condominium unit | | $20,000 |
| | Proceeds on disposition | | 30,000 |
| | Capital gains | | 10,000 |
| | Therefore you must add to other income | | $ 5,000 |

| | | | |
|---|---|---|---|
| (11) | Original cost of Condominium unit | (A) | $20,000 |
| | Less: Capital Cost Allowance claimed over time, to reduce income taxes (see example (11) under following section on Income Tax implications) | | $ 2,000 |
| | net book value for tax purposes | (B) | $18,000 |
| | Proceeds on disposition | (C) | $30,000 |
| | Capital gain in this case is still (C)-(A) | | $10,000 |
| | Therefore you must add to other income | | $ 5,000 |
| | But you must also add to other income the recapture of the C.C. Allowance claimed (A)-(B) | | $ 2,000 |

11/8/72

| | | | |
|---|---|---|---|
| (111) | Original cost of the condominium unit | (A) | $20,000 |
| | Less Capital Cost Allowance claimed | | 2,000 |
| | Net book value for tax purpose | (B) | $18,000 |
| | Proceeds on disposition | (C) | $19,000 |

Capital loss (A) - (C) is not allowable

But, you must add to other income the recapture of

the C.C. Allowance claimed (C) - (B) (see note) $ 1,000

Note. While the addition of this $1,000 directly to other income might seem unjust, it must be remembered that income tax relief in the order of $2,000 had been obtained in prior years by claiming Capital Cost Allowance. The net overall effect of $1,000 deduction from income is a 100% deduction unlike other capital gains or losses which are treated on a 50% basis.

| | | | |
|---|---|---|---|
| (1V) | Original cost of the condominium unit | (A) | $20,000 |
| | Less Capital Cost Allowance claimed | (B) | 2,000 |
| | Net book value for tax purposes | (C) | $18,000 |
| | Proceeds on disposition | (D) | $15,000 |

Capital loss (A) - (D) is not allowable

But, you can deduct from other income the full

amount of the "terminal loss" on disposition (C)-(D) (E) $ 3,000

Therefore the grand total deduction from income is (B)+(E) $ 5,000

which is also the differance (A)-(D).

## WHAT ARE THE INCOME AND INCOME TAX OPPORTUNITIES FOR THE OWNER?

A unique feature of resort condominium developments is the rental pool agreement, whereby each unit is made available by the owner for rental during the period in which he himself is not using his unit. A rental manager (usually the same as the property manager) is normally appointed by the owners' association, who co-ordinates the rental arrangements for visitors, accounts for all revenues, deducts his fee and direct operating expenses (cleaning, linen etc.) and turns over the net proceeds to the owners' association, which in turn divide the proceeds amongst the owners.

While the data on the actual experience of existing condominium developments is sketchy, the initial projections for Maple Mountain occupancy indicate that the owner can expect at least 100 days' rental per annum, depending, of course on the period of his personal use.

Rental income so derived is added to income from other sources by the owner for income tax purposes. If it is clear, however, by way of a rental agreement, that the owner makes his unit available for rental for periods of other than personal use, then certain income tax advantages follow. The following two examples should suffice by way of explanation:-

Assume: - The owner enters a rental agreement with a property manager.

- The owner uses his visit for 1 month of the year and makes the visit available for rent for the other eleven months, and is in a 50% income tax bracket.
- Mortgage of $15,000 @ 9%.

| | | | |
|---|---|---|---|
| Rental Income: | | | $2,500.00 |
| Less: | Variable expenses directly related to deriving this income: | | |
| - | Rental Management fee - 15% of | $ 375.00 | |
| - | Interior cleaning and linen service - 15% of income: | $ 375.00 | |
| - | Other repairs of damage etc. estimate 5% of income: | $ 125.00 | $ 875.00 |
| Net Income: | | | $1,625.00 |
| Less: | Fixed expenses: | | |
| - | Common expenses - maintenance etc., | $ 360.00 | |
| - | Property taxes: | $ 400.00 | |
| - | Insurance: | $ 250.00 | |
| - | Utilities and heating: | $ 500.00 | |
| - | Mortage Interest first year | $1,315.00 | |
| | (principal repayment $285.00) | $2,825.00 | |
| - | Less owner's portion for period of personal use 1/12x $2,825.00 | $ 235.00 | $2,590.00 |
| Loss: | Which can be deducted from personal income from other sources:* | | $ 965.00 |
| | Income tax saving for a person in a 50% tax bracket: | | $ 482.50 |
| Add | Rent free vacation - one month - 4 weeks @ $200.00 per week: | $ 800.00 | |
| | Less - 50% of owner's portion of fixed expenses: | $ 120.00 | $ 680.00 |
| TOTAL SAVING: | | | $1,162.50 |
| Actual Cash Outlay: | | | |
| - | Net loss as above | $ 965.00 | |
| - | Mortgage principal | $ 285.00 | |
| | Owner's portion of fixed expenses | $ 235.00 | $1,485.00 |

*NOTE:

Since the basic premise of the Income Tax Act is the reasonable expectation of profit, the deductibility of losses of this nature may be challanged if losses are declared for more than just a few years in a row.

1) Rental Income: $4,500.00

| | | | |
|---|---|---|---|
| Less: | Variable expenses directly related to deriving this income: | | |
| - | Rental Management fee - 15% of income: | $ 600.00 | |
| - | Interior cleaning and linen services - 15% of income: | $ 600.00 | |
| - | Other repairs of damages etc- estimate 5% of income: | $ 200.00 | $1,400.00 |
| Net Income | | | $3,100.00 |
| Less fixed expenses: | | | |
| - | Common expense - maintenance etc | $ 360.00 | |
| - | Property taxes: | $ 400.00 | |
| - | Insurance: | | |
| - | Utilities & Heating: | $ 500.00 | |
| - | Mortgage interest first year | $1,315.00 | |
| | (principal repayment $285.00) | $2,825.00 | |
| - | Less owner's portion for period of personal use 1/12x $2,860.00 | $ 235.00 | $2,590.00 |
| | Cash Profit: | | $ 510.00 |
| | Capital cost allowance on structure: | | $ 510.00 |
| | Effect on owner's taxable income: | | NIL |
| | Rent -free vacation - one month 4 weeks @ $200.00 per week. | $ 800.00 | |
| | Less 50% of owner's portion of fixed expenses: | $ 120.00 | $ 680.00 |
| Add | Cash Profit: | | $ 480.00 |
| TOTAL SAVING: | | | $1,160.00 |
| Actual Cash: | | | |
| - | Owner's portion of fixed expenses | $ 235.00 | |
| - | Mortgage principal | $ 285.00 | |
| | | $ 520.00 | |
| | Less net profit as above | $ 510.00 | $ 10.00 |

NOTE:

Income tax at personal rates will have to be paid on capital cost allowance claimed in prior years, at the time of disposition of the property if a gain is made over the written-down cost. (see example (11) under section on capital gains.

THE DECISION TO LOCATE AT MID MOUNTAIN

While a careful financial analysis was done on each proposed village location, the final choice at the mid point level was based on four considerations:

1. This site has spectacular views which are perhaps not quite as dramatic as those at the top of the mountain but still of great beauty and with a greater variety.

2. The location on the east side of the mountain is a very wind protected area. Outside activities can be enjoyed here in the winter without the windchill factor that would have been experienced at the top.

3. The location at the mid point allows a quick dispersal of the skiers in the morning and will avoid the long line ups usually experienced in developments at the bottom of a mountain.

4. The Upper Lake around which development will take place will allow the direct contact with water so essential for summer use. Swimming, sun bathing and sailing with small sail boats, can be done directly from the front door of many chalets.

The village layout has taken full advantage of the topography and affords spectacular views of the northern landscape from each unit as well as from the major centres. In addition there are intimate views into the village squares.

The ridge location of the village opens views towards the east over the many hundred lakes comprising the Lady Evelyn and the Timagami Lake systems and towards the west the face of Maple Mountain with its dramatic rock outcrops.

## PEDESTRIAN MOVEMENT

The main objective has been to make all facilities accessible by foot from any part of the village. The casual relaxed nature of skiing and the life connected with it will be much more enjoyed if a family must not all leave by car at the same time in the morning to go to the ski hill. The ability of the eager youngsters to leave half an hour earlier than their parents or to be able to walk home from the ski lifts at any time when tired, will enhance the freedom of a holiday. The same is true for summer activities.

The ability to reach all facilities without a car opens a totally new enjoyment of the village and creates an activity forgotten in our car-dominated Canadian cities - the leisurely promenade: walking, watching, window shopping and then sitting somewhere and letting the activity drift by, surrounded by pleasant architecture, with glimpses of the northern landscape that grows untouched to the edge of the village.

Roads that are used for cars are not pleasant pathways to walk on. The experience of the landscape is different depending on the speed at which the viewer moves. Therefore vehicular roads and pedestrian pathways each need a different scale.

## VEHICULAR MOVEMENT

A planning solution has been created for the village in which all major activities can be reached on foot, so that after arrival there is no need for the guest to use his car again.

If the car and the pedestrian are in constant conflict in a resort it will detract from the desired relaxed atmosphere; it is therefore essential to create walk-ways that are not disturbed by car traffic.

The majority of parking spaces would be less than 2 minutes walking distance from the accommodation. Yet, for convenience the car or bus should come as close as possible to the visitors final destination. If cars can unload close to the main entrances of the inns and chalets then a short walking distance from the final parking space to the entrance is acceptable.

Every attempt should be made to diminish the size of the parking lots and to obscure their existence from the village. However parking spaces must be designed to allow for proper snow-ploughing equipment.

In the first stage, parking will be on the surface with the exception of a small parking garage in connection with the major inns. The future growth of the village will see some of the surface parking converted into underground parking. This has taken place in various other developments. For example Vail / Lions Head, an extension of the first village, will have approximately 40% underground parking. Therefore the future growth of the village will not occupy any more space, but will convert and build over part of the initial surface parking lots.

Existing resorts have handled the car problem in different ways:

1. Vail attempts to ban tho cars from many streets - however it is not too successful as sufficient parking facilities close by are lacking.

2. Vail / Lions Head is proposing 40% underground parking with the rest dispersed in open parking lots distributed throughout the site - but accessible in such a way as not to interfere too much with pedestrian walk-ways.

3. Snowmass has eliminated the parking from the inside of the village by placing it parallel to the condominium

area. Thus it does not interfere with the pedestrian shopping precinct but it does not create attractive approaches to the condominium area.

## VISITORS

A mixture of various types of accommodation ranging from inns to chalets must be achieved. While the future growth will be in the condominium section, the initial growth pattern may favour the inn. Growth patterns of other developments have shown such a trend.

Two major categories of ownership are envisaged - the commercially operated inn and the privately owned chalet. Within these two categories a full range of choices will be provided. These choices will be complementary without eliminating a healthy competition between establishments to provide the best service.

The inn type accommodation will provide hotel room service at various cost levels with and without related commercial and restaurant facilities. The size of the inns will range from small units of 25 to some large units of over 100 rooms. Their arrangements and layout will be of such a nature as to allow for groupings of smaller inns into a larger unit if so required, or a possible division of a larger inn into smaller units.

Variations in cost level for all types of accommodation, including low budget costs, must be achieved without destroying the attraction and atmosphere of Maple Mountain.

The chalet accommodation will have individual ownership for each unit. Various types will be offered: apartment type units, as well as various town house styles. During the time an owner is not using his chalet it will become part of a rental pool for use by resort visitors.

It is desirable to have the condominiums closely related to the inns for more efficient service to the former when required, as well as to broaden the financial base of the inns. Each inn can therefore increase its capacity without additional investment. Each condominium owner is given a better chance of rental options and therefore a better financial return.

Hostel type accommodation is also provided.

By these means a choice of size, type and cost of accommodation will be achieved and the monotonous "one type" accommodation which mars some of the new resorts will be avoided.

## STAFF

Experience in similar locations has shown that some of the staff must live on the site. This should not reduce the economic spin-off for adjacent communities (which may not be able to accommodate a relatively large population influx) but will provide an activity base for the village and avoid the atmosphere of a ghost town during the off periods.

The units will be dispersed throughout the site for better integration and proximity of services.

## ACTIVITIES

One must not forget that the village is one resort and all services are complementary to each other. It is not necessary to provide and repeat in each inn the full complement of auxiliary facilities as usually required for a conventional hotel. Not all inns will need the idential arrangement of facilities but each could specialize and create individuality and excellence in one field.

The distribution between "in house" commercial facilities versus independent facilities can now be handled on a flexible individual basis. It is important that the design allows for such future organizational changes and readjustment without structural changes.

Activities should be concentrated in the various subcentres of the village to achieve "crowded conditions" even at a time of low occupancy, yet have space to accommodate larger crowds. For example if a restaurant consists of three rooms rather than one, two can be closed during the off season and a small number of people entering it will not have the feeling of being lost. The same principle can be applied to the central business area which should be compact and yet

have overflow spaces. Such a layout would naturally concentrate the traffic at low times in the central parts and let it overflow at the peak season in side eddies, at each time maintaining the feeling of great activity.

FLEXIBILITY

It is necessary to establish a space programme for the various facilities in a project of this kind in order to be able to design and build it. But it must be recognized that such a programme, however skillfully compiled, will be subject to change once the project is built and in operation. It must be possible to adjust spaces to new requirements at minimum cost when these become evident. For example it will be a great advantage if residential space can be converted to commercial use if the demand arises.

Such a change-over between commercial and living spaces could be quite readily achieved by having some of the living accommodation on the first floor fronting onto terraces and adjacent to the shopping centre. This could then be readily adapted from private terraces to shopping arcades. Leaving open spaces to allow for commercial expansion at a later stage would defeat the purpose of creating at the start a complete and enclosed urban environment.

CONCEPT OF THE VILLAGE CENTRE

It is essential to create an exciting centre within the village that will attract people and create the focus for various activities for all summer and winter weather conditions.
In the heart of the project a series of interior and exterior spaces are interrelated that will allow the holiday villagers to view as well as participate in the life of the village. A large space lit by skylights and attractively landscaped will embrace a pool that in its form will echo a Northern Lake. In summer wide doors will open onto a terrace adjacent to the Upper Lake for sun bathing. The activity in the pool as well as the Village Lake can be seen from various levels surrounding this space. The two inns on the south create the outer enclosure.

The major commercial activities relate also to this central space. For example the restaurant on the upper level overlooks the activity of the pool and the view of the lake to the south - while to the north it can be entered from the ski street.

The ski street with the chair lift above it runs directly through the village, allowing skiers to begin and end their skiing right in the village centre. The ski cafeterias,

ski shops and bars related to this area of active skiing surround this space. Yet these facilities are also intertwined with all other activities in the village achieving a full usage throughout the day.

The interconnection of all these spaces and their relation to interesting views will allow their full usage at all times. For example the ski cafeteria in the summer relates to the village, its connection with the hotel allows its use for conferences, banquets or as a pub at night.

A village guest can step out of his room and commence skiing right in front of the lobby. Yet 25 feet below at that same point other guests will arrive in their cars to register and commence their holiday.

Connected to the centre is a large tent or air structure for sports activities such as tennis. This space is also designed to be used as a major convention hall and for occasional performances or gatherings of 2,000 people. It is obvious that such a multi-purpose space will not fulfill all functions at optimum level; however it is felt from past experience that to attract some of the major conventions in off seasons such a large space will be required. Yet this space is used so infrequently for conventions alone that other activities must be added to make it a viable proposition.

RELATION OF ACTIVITIES TO EACH OTHER

For the best use of facilities it is vital to have skiing, tennis and other activities within walking distance from the living and commercial areas. The balance between winter and summer use must be carefully considered. Wherever possible all these should have their starting points within the same vicinity. One should not forget that these activities are not indulged in by the majority of people to achieve olympic standards but for enjoyment. Therefore proximity to restaurants, cafes, bars and terraces, where one can relax and in comfort watch the various activities, is essential.

The active part of the village of Vail which is a relatively comfortable size to walk is approximately ½ mile long. At Maple Mountain this has been condensed.

## SHOPPING STREET

Shopping streets that contain various commercial areas - stores, restaurants, pubs, as well as conference rooms lead from the pool galleries. Within these malls two storey spaces are created similar to the Galleria in Milan, but with a greater atmosphere of relaxation and informality. From these malls occasional views into the exciting landscape are created. Natural light plays through these spaces at prominent as well as unexpected places.

## WEATHER PROTECTION

Since in summer and winter rapid changes of weather can be expected various enclosures must be provided for certain activities. It will be desirable to have protected walk-ways through the major areas that will allow one to walk under cover to most facilities during rain or snow storms. At the same time it is also essential to have adjacent open walk-ways for sunny weather.

## INTEGRATION WITH VILLAGE

The two interior shopping streets lead directly to the chalet areas and the smaller commercial centres within them. The

commercial facilities here will be all of a smaller nature, with boutiques, small restaurants, entertainment areas, repair shops, stores, groceries, etc., to encourage varied activities. Yet these locations will not only be convenient to the chalet guest but will also encourage others to walk and explore the whole village.

## CULTURAL ACTIVITIES

Within the space provided a great number of cultural activities can be encouraged. The two theatres, the large convention tent and the conference spaces will allow for art schools, summer theatres, summer seminars and music festivals.

## THE VILLAGE AS AN EXHIBITION

Rather than provide special exhibition or museum spaces the village itself and its many spaces will serve as a live museum, capable of displaying art shows, the history, ecology and achievements of Northern Ontario. The village itself could serve as an example of how the North could grow without destroying its ecosystems and how northern settlements could fit into the natural environment.

## ARCHITECTURAL TREATMENT

After analysis of the reasons for the success or failure of resort villages of a similar nature certain psychological and aesthetic facts can be crystalized.

First it is essential to create within the village a complexity that avoids monotony and boredom. Visual changes must be geared to the perception of the pedestrian. These variations will affect the village layout, the village forms and the materials. For example: perceivable spaces in excess of 200 to 300 feet become boring. When walking through a village, it is essential to create landmarks showing destination points. While the eye is diverted constantly in these short length spaces it is essential that at the same time the pedestrian does not lose orientation. The landmarks will orient him and serve as constant beacons. The forms within these spaces must vary and be clearly differientated so that each particular space will take on a different character. This helps people to recall later a particular area which becomes part of the orientation pattern. The overall length of a village for such pedestrian use should not exceed 2,500 to 3,000 feet - beyond that mechanical means of transportation must be introduced.

Last but not least comes the choice of the materials to be used. Uncontrolled variety does not achieve the complexity that is desired but creates confusion. In carefully studying many of the European and English resort villages as well as the more successful

North American developments it becomes quite clear that their choice of materials                                      is based on their co-ordination and on restriction of their variety. In old villages such restriction occured naturally as the local availability of materials dictated this choice. One will find in certain regions only stone walks and flat roofs, in others shingles and somewhere else slate or stucco. This limitation of basic materials and the rhythmic repetition of these forms creates the charm that we respond to. However coupled with this charm we find an individual freedom of expression and variety within the basic forms. This is of course the reverse of the standard American subdivision. Here the form is rigidly standardized and a frantic attempt is made to create complexity through unlimited choice of colour and materials. The discovery of this fact is vital and its achievement of the desired variety is possible within the realms of our economy and technology.

The major complexity must be achieved at the eye level. While walking on a street the eye usually only perceives the complexity and detail up to the first storey and enjoys its change and rhythm. The upper floors will only be perceived at a further distance and here the rhythm should change to larger intervals. Yet the counterpoint to this complexity within the village is the unity of form and material of the village as seen from a distance. Viewed from a distance, despite its complexity, a Swiss Village through similar shapes and colours creates an entity that harmonizes with nature in the same way as a rock outcrop within a forest creates a natural

Balance. The form of Maple Mountain Village presents a unity of repetitive elements that yet allows for variations in form and materials. The following materials will be chosen: exposed concrete - gray and at certain points in brown earth colour; stucco, white but in primary colours in limited areas to create counterpoints; and natural wood.

CONSTRUCTION METHODS

The construction in this northern location must face different problems than those encountered in the southern regions of Ontario.

A first problem will be that of transporting materials from their point of manufacture to Northern Ontario and a second is the limited local availability of skilled labour. However, these problems are not any different than the problems encountered in constructing mines and other industries in this area.

The basic concept will be to use, wherever available, local labour forces and materials. Yet, similar projects in the past have found that local labour alone may not suffice. Further detailed studies of this particular problem will be essential. The estimating of the construction costs have taken into account the possibility of such conditions.

The prevailing site conditions force a careful evaluation of the construction methods to be used. Generally bedrock is very close to the surface and changes to the contours will be avoided as far as possible. The majority of the usable spaces required in the village program will be for Chalet and Inn use. The trend in the construction industry for these types of construction is towards greater factory assembly and prefabrication of elements.

It is anticipated that these units could be prefabricated and shipped completed to the site minimizing site labour. The site work would be restricted to site services, poured concrete foundations as well as certain special commercial and recreational buildings that due to their non-repetitiveness do not lend themselves to such prefabrication.

Thus the majority of the work would be done "off site" reducing the labour problems that could be created due to the location. It also allows a reduction of the construction time.

The atmosphere desirable for such a holiday resort as well as the most economical use of construction technology in the context of the site conditions dictate an extremely dense village development. This makes it necessary to use a highly fire resistant construction technique.

The present plans anticipate that the chalets will be raised on concrete posts to avoid unnecessary blasting. The village centre base levels will be constructed of poured-in-place concrete on which the prefabricated hotel units will be set.

The prefabricated units would arrive without exterior finishes which will be applied on the site with semi prefabricated components. This will allow for a greater variation in the appearance of the building.

August 11, 1972

APLE MOUNTAIN PROJECT

RELIMINARY INFRASTRUCTURE COST ESTIMATES

Access Road - 25 miles @ $240,000 per mile $6,000,00

Village

| | | |
|---|---|---|
| - site clearing, excavation and landscaping | $ 835,000 | |
| - internal roads; paved, curbed and lighting | 583,000 | |
| - boardwalks, paths and gravel drives | 763,000 | |
| - bridges and terraces | 284,000 | |
| - concrete bridge - village centre | 305,000 | |
| - 2050 outside parking spaces, paved, landscaped, and power outlets. | | |
| - 90% to north of village site | 1,318,000 | |
| - 10% to south of village site | 146,000 | |
| - 500 outside parking spaces, gravelled, landscaped and power outlets. | | |
| - at base of hill by Day Lodge | 175,000 | |
| - water treatment plant, Hobart Lake | 437,000 | |
| - feeder main, 12,000' buried @ 7' | 336,000 | |
| - ground storage reservoir above village | 195,000 | |
| - transmission main, 3500' buried @7' | 109,000 | |
| - internal distribution system | 100,000 | |
| - sewage treatment plant, 360,000 GPD tertiary plant with phosphorus removal | 477,000 | |
| - gravity collector, 5200' | 172,000 | |
| - internal system, including pump station | 126,000 | |
| - storm drainage - village - 4000' | 180,000 | |
| - storm drainage - parking areas - 2000' | 90,000 | |
| - underground hydro distribution | 80,000 | |
| | | 6,711,000 |

Camping and Trailer Sites (200 spaces)

| | | |
|---|---|---|
| - site clearing, levelling, fencing | 129,000 | |
| - roadway - gravelled | 68,000 | |
| - water main | 62,000 | |
| - internal distribution | 44,000 | |
| - sewage holding tank | 4,000 | |
| - underground hydro distribution | 25,000 | |
| | | 332,000 |

Skiing Trail Development (capacity 3000 skiers/day)

| | | | | |
|---|---|---|---|---|
| - trails | 164 acres | | | |
| - connecting links | 8 acres | | | |
| - skiable lift lines | 6 acres | | | |
| | 178 acres | | | |
| - high cost due to rock ridges and other topographical problems | | 30 acres @ $35,000 | $1,050,000 | |
| - moderate cost | | 40 acres @ $10,000 | 400,000 | |
| - low cost | | 108 acres @ $4,000 | 442,000 | |
| | | | | $1,892,000 |

Golf Course - 9 holes

| | |
|---|---|
| - site clearing and construction of fairways, greens and tees | 322,000 |
| | 15,257,000 |
| Professional fees and contract administration @ 12% | 1,830,000 |
| GRAND TOTAL PRELIMINARY INFRASTRUCTURE COST ESTIMATES | $17,087,000 |

## SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

### 1. WATER SUPPLY AND DISTRIBUTION

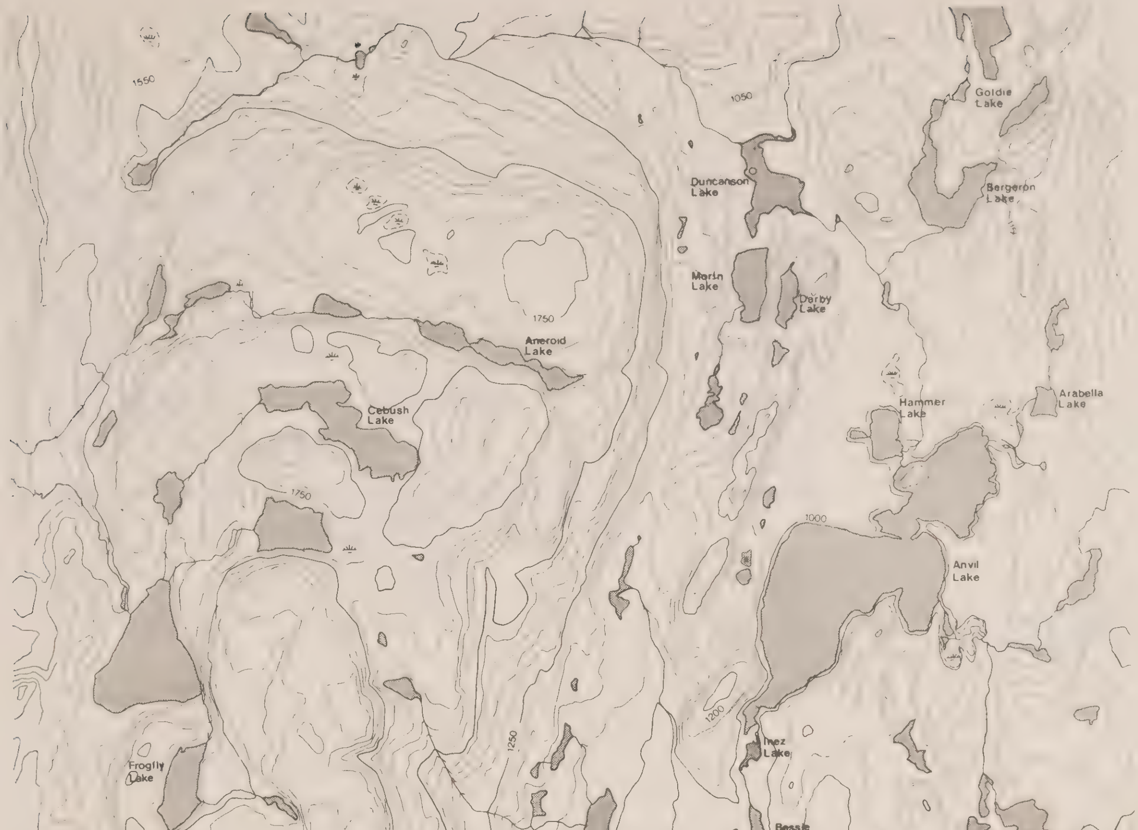
On the basis of our field reconnaissance of the site area and the prevailing local geological conditions, a surface water source of supply is recommended for this development. Hobart Lake is the recommended source. This lake is deep, fairly large, and is fed by an extensive system of upstream lakes and streams. This source also has the advantage of being close to the development site. The quality of the raw water in the lake is quite acceptable.

The water supply system would be comprised of an underwater intake crib and pipeline, a low-lift pumping station, a water treatment plant on the west side of Hobart Lake, a high-lift pumping station and a transmission main. The transmission main would discharge into a ground level storage reservoir located near elevation 1670 above Village I (see Exhibit 4).

The camp sites, trailer site and single chalet site east of Hobart Lake would be fed by a separate pumping system and pressure main.

The chalet site southwest of Village I would be served by a separate (gravity) feeder main from the ground level reservoir, or from the 10" main supply line. If this chalet site is moved to a higher elevation, it would still be feasible to supply it via a pumped feeder main from the same reservoir.

The estimated costs for water supply, treatment and distribution are given in detail in the report, but are summarized as follows:




# 24.General Municipal Services

| | | |
|---|---|---|
| Water Treatment | $437,000 | |
| Feeder Main | 336,000 | |
| Ground Storage | 195,000 | |
| Transmission Main | 108,600 | |
| Internal Distribution System | 100,300 | |
| Camp Site, Chalets, Marina | 196,000 | |
| Day Lodge-Golf Club-Service Station & Maintenance Building | 27,000 | |
| Chalets - South of Village | 61,800 | |
| Day Lodge | 35,000 | $1,496,700 |

2. SANITARY SEWERAGE SYSTEM

The Village I development area would be serviced by a system of gravity sanitary sewers, as shown on Exhibit 6(a). These sewers would flow to an underground wet well and pumping station, located near the north end of the small lake. From this point the major portion of the Village I flow would be pumped via a 10" dia. force main, to a gravity sewer flowing southerly along the hillside to the sewage treatment plant site.

The proposed sewage treatment plant site (see Exhibit 4) is on a small watercourse, about one mile south of the Village I site, at elevation 1300. This plant would be of the extended aeration type and would provide for complete treatment, including effluent filtration and nutrient removal, in accordance with the Ministry of the Environment requirements.

Soil conditions are deemed to be not suitable for the successful application of septic tanks and tile beds.

It is recommended that sanitary sewage from the single chalet sites be collected via sanitary sewers and discharged into holding tanks

for trucking to the sewage treatment plant. Similarly, holding tanks are recommended for installation at the camp site, trailer site, gas station, day lodges and golf club and marina.

The estimated costs for the sanitary sewerage system are summarized below. Details are presented in the body of the report.

| | | |
|---|---|---|
| Sewage Treatment Plant, Outfall Sewer and Channel Improvements | $477,000 | |
| Collector Sewer | 172,000 | |
| Internal Sewers | 125,800 | |
| Chalet Sewers, Holding Tanks for Chalets, Marina, Trailer Area and Camping Area | 119,100 | |
| Holding Tanks for Maintenance Bldg., Service Station, and Two Day Lodges | 12,200 | |
| Chalets, South of Village I | 112,300 | $1,018,400 |

## 3. STORM DRAINAGE

Provision for handling storm runoff has been made, but since the storm drainage system is contingent upon the layout of the development and its roadways, the provision for about 6000 ft. of storm sewers should be considered quite preliminary. The conceptual system is shown on Exhibit 6(b). Storm runoff would be discharged into the small lake adjacent to Village I where feasible to do so. The northerly section of the Village and the drainage from the hillside and large parking area would be taken northerly, to discharge into an existing small watercourse some 400 to 500 feet north of the parking area.

The estimated cost of storm drainage facilities is about $270,000. This excludes the drainage associated with local gravel roads, which would normally have ditches and culverts constructed as an integral part of the roadwork.

It is recommended that road salt not be used, in order to minimize the amount of salt solution discharged into nearby lakes and streams.

4. TELEPHONE & HYDRO

It would appear that the installation of telephone facilities will not involve capital charges to the development.

With respect to power supply, the incremental cost of supplying power to Village I versus Village II is estimated to be in the order of $40,000. Underground power distribution within the Village and the other developed areas is estimated to cost about $250,000.

5. ROADWAYS

The cost of the main access road is very much dependent on the design standards employed and the soils conditions encountered along the chosen alignment. An improved roadway with a 30' gravel surface and a 40 mph design speed is estimated to cost in the region of $170,000 per mile. A paved two-lane road with 8' shoulders and the same design speed has an estimated cost of $275,000 per mile. A roadway of the same cross-section and a 50 mph design speed is estimated to cost about $380,000 per mile. These costs assume an average overburden thickness of two feet, then rock.

A much more detailed investigation of the roadway alignment and soils conditions, is required.

Using the design standards mentioned, the road construction incremental costs of Village I over Village II vary from about $130,000 to $665,000.

Within the Village it is assumed that roads will be paved, with curb and gutter and lighting. The extent of the internal road system was not known at the time of writing and for costing purposes 4000' of 36' wide roadway was assumed. It is estimated to cost $220,000.

Roadways to the other development areas were assumed to be 24' wide with a gravel surface and side ditches and were estimated to cost $292,000.

6. COMMON TRENCH CONSTRUCTION

Where feasible, it is recommended that water mains, sanitary sewers, storm sewers and other buried utilities be installed in a common trench. Each utility would be located on a specified alignment and at a preferential depth. In this way, the high cost of rock excavation could be minimized and an acceptable quality of construction achieved.

## INTRODUCTION

On May 30, 1972, representatives of De Leuw, Cather met with Mr. E.H. Zeidler of Craig, Zeidler, Strong to receive a briefing on a proposed resort development in Northern Ontario. Subsequently, De Leuw, Cather were appointed as Municipal Engineers to the project team, with duties to encompass the following:

- (i) The water distribution and treatment system:
- (ii) The sanitary sewer distribution and treatment system:
- (iii) The storm drainage system;
- (iv) The telephone, hydro or gas, utilities.

In a letter dated June 6, 1972 preliminary costs of supplying services were given to the Architect. On July 2-3 a site visit was made by several members of the project team including one representative of De Leuw, Cather and one representative of Golder Associates. Based on this visit and further study more refined cost estimates for the municipal services have been carried out and are presented in this report. In addition, at the further request of the Architect, De Leuw, Cather was requested to comment on roadway and other aspects of the project.

A copy of the soils consultant's report is included in Appendix A. Also included in Appendix A is a letter from De Leuw, Cather to Golder Associates confirming a conversation, on the geotechnical aspects of the project, which was made after receipt of their report.

It should be emphasized that on the basis of the very limited amount of geotechnical work carried out, the cost estimates made can only be considered preliminary. More detailed investigations are required if accurate cost estimates are to be obtained.

## WATER SUPPLY SYSTEM

### Source

We consider the nearest acceptable and reliable source of water supply to be Hobart Lake. This lake appears quite deep from aerial reconnaissance and boating on the lake. The west shore at the north end of the lake has some marshy green vegetation in the shallow portion but the lake appears to be very good in quality in the wider portion of the body. The lake is fed from other upstream lakes and empties into Sucker Gut Lake, thus assuring, non-stagnant good quality water. However, some colour and organic material can be expected which is typical for northern waters. Turbidities can be expected to be high in the spring runoff period and during the fall rainy season. These considerations will be taken into account in the treatment requirement. The water analysis from a sample taken on July 3, 1972 at Hobart Lake is shown as Exhibit 1 of this report. From the results given, the water quality, although soft, appears excellent. The laboratory did not test for colour as requested but some colour is anticipated.

Tupper Lake was given consideration for a water supply since some distance of transmission main could be saved. However, this lake appears shallow and is a somewhat dead-end lake with no large water bodies feeding into it. This lake is therefore rejected as a possible source.

Some consideration was given to a well supply. It is estimated that more than one well would be required for the demand anticipated for Village I and associated activities. The location of these wells would be expected to be at elevation approximately 1,000 to obtain ample recharge of any water bearing aquifer. Furthermore, a well supply could not be assured without quite extensive test

drilling results which could prove unfavourable. Accordingly, we have considered a surface supply for our cost estimates and your project cost.

Design Criteria

| | | | |
|---|---|---|---|
| Population - Village I | | = | 3,250 visitors |
| | | | 750 staff |
| | | | 4,000 persons |
| Campers & Trailers in Hobart Lake Area - | 200 sites @ 3 persons/site | = | 600 persons |
| Single Chalets in Hobart Lake - Lady Evelyn Lake Area | 100 sites @ 4 persons/site | = | 400 persons |
| PER CAPITA CONSUMPTION - MAIN VILLAGE | | = | 80 GPCD AVERAGE |
| | Campers & Trailers | = | 10 GPCD AVERAGE |
| | Chalets | = | 40 GPCD AVERAGE |
| AVERAGE DAY WATER REQUIREMENTS - MAIN VILLAGE | | = | 320,000 GPD |
| | Campers & Trailers | = | 6,000 GPD |
| | Chalets in Hobart Lake Area | = | 16,000 GPD |
| | Chalets on south side of mountain | = | 16,000 GPD |
| | TOTAL WATER CONSUMPTION | = | 358,000 GPD |

Maximum day requirements are expected to be approximately two times average day consumption. A total maximum day consumption of 716,000 GPD is expected. Village II would add an additional 640,000 GPD which is considered in the intake and low lift pumping station design only.

Peak hour consumption could be in the order of 1.5 times maximum day consumption.

Intake

We are proposing a 14" dia. intake with a small intake crib extending approximately 1,000 feet into Lake Hobart. In sizing the intake we have made allowance for Village II on the assumption that this would proceed at sometime in the next 20 years. A 14" dia. intake, with a capacity of approximately 1.4 mgd (maximum day consumption for Village I & Village II) has been costed. We would suggest a poly-ethelene intake with weights located on the lake bottom. This intake could possibly be constructed on the ice in winter time or alternatively by barge in open water.

In discussions with Mr. D. Davis, of the Estimates and Resources Section, Operating Department, Power Systems Operation Division, Hydro Electric Power Commission, it was learned that the Lady Evelyn Lake system varies over a range of approximately 14' in the hydraulic year from October 1 to September 30th. Appendix B shows a typical hydraulic year. In the time limitations for this report, we have not determined if Hobart Lake is affected as much as the Lady Evelyn levels, but for design purposes, at this time, these levels have been assumed. This information together with lake soundings would exactly determine the length of intake required to obtain some 15 to 20' of water depth over the intake during low water level. Consider-ations of ice formations and winter conditions would be given further consideration later in design.

Discussions with Mr. L.A. Leeyus, of the Hydro Electric Power Commission, yielded the fact that the Mattawapika Dam improvements are expected to be finished by October 1, 1972 and would therefore not affect this project. The lake water levels are expected to vary in

accordance with those levels presented in Exhibit 2, although a somewhat lower low water level (933.6) could be obtained with some improvements in the channel upstream from the dam.

## Low-Lift Pumping Station

We would propose a low-lift pumping station, equipped with two submersible pumps initially, with space for the third future pump should Village II proceed. This station would require a minimum of superstructure since the pumps are submersible and the controls can be located in the water treatment plant building. Initially, two pumps would be provided, each capable of approximately 500 gpm. A future pump would have an approximate capacity of 475 gpm. The pumps have been sized to provide maximum day capacity to the water treatment plant.

## Water Treatment Plant

A plant of the prefabricated packaged type, is expected to be the least expensive. This plant would include flash mixing, coagulation and floculation, followed by filtration. Chemical addition for coagulation aid, PH adjustment, taste and odour control, and chlorination, would be provided as required. A Plant of this nature would provide a good potable water supply throughout the year. The construction requirements for this type of plant would be minimal and this is expected to be important in this area.

Associated with the plant would be a clear well with a sufficient storage for backwashing, high-lift pump cycling and peaking storage for the camp sites, trailer areas, and single chalets, together with the Marina east of the Hobart Lake area. We propose a clear well storage volume of approximately 30,000 gallons usable associated

with the plant. Other storage requirements for peaking and fire requirements for Village I would be provided in ground storage at an elevation above the Village I. The trailer, chalet and camping areas would be supplied by direct pumping from the treatment plant clear well with no storage at these sites.

High-lift pumping facilities would consist of essentially two separate systems. High-lift pumps with high TDH would provide capacity for single stage pumping to ground storage facilities located above the lake associated with Village I location. We would suggest three high-lift pumps for this duty, each rated at approximately 233 gpm. One of these three pumps would act as standby for the other two pumps which would be capable of providing maximum day demand to the ground storage reservoir. We would tentatively suggest two smaller high-lift pumps to serve the chalets, camp site and trailer areas. Two pumps at 25 gpm each should suffice to serve the chalets and trailer sites east of the Hobart Lake area. These pumps would serve peak demand with no allowance for fire protection. The chalets south of Village I location would be serviced by small high-lift pumps from the ground storage reservoir, or more likely by a secondary line off the 10" dia. supply line.

Diesel generator facilities would be provided for standby power in case of regular power outage. The standby power facility should be capable of running two high-lift pumps, which serve the main village, one low-lift pump, together with other requirements of the small motors associated with the treatment plant. We anticipate a diesel generator set of approximately 150 killowat capacity would be required. If standby power is provided at a central location for the general area, then a diesel generator at the plant could be eliminated.

A schematic of the water treatment plant facility is shown in Exhibit 3. The water treatment plant location is shown on Exhibit 4.

Water Transmission Main

Considering the location of the ground storage reservoir and the water main route, shown on Exhibit 4, it is recommended that a 10" dia. water main be provided. This water main has been selected to minimize friction loss but be compatible with pumping requirements. Consideration was given to booster pumping to use lower pressure water main than the 350 psi required. However, considering the construction cost and operating requirements, it is recommended that single stage pumping with 350 psi working pressure pipe be utilized. The water main location extends generally westward from Hobart Lake to the gas station and maintenance building area. The facilities at this location together with the day lodge and golf course clubhouse could be serviced from the main transmission line after pressure reduction has been accomplished by a pressure reducing valve. The water main extends westerly from the maintenance building, and crosses the access road twice, and terminates at the ground storage reservoir located at elevation 1670 (approximately), as shown on Exhibit 4. The water main from the ground storage reservoir would be the usual municipal 150 psi working pressure water main, following the access road into the main Village I.

We were requested to report on the feasibility of alternative methods of water main installation, with a view to minimizing water main construction costs.

One method considered would be to install water mains at a "shallow" depth and to wrap the pipes with insulation, or to otherwise insulate the main. Since the water temperature at the intake in Hobart Lake will be near freezing in the winter, virtually no heat loss from the water in the mains can be tolerated, to prevent freezing in the pipe. In other words, the pipe insulation between the frozen ground and the water main must prevent all heat loss and accordingly, it would

be quite expensive. In periods of low water consumption there would be a high risk of the pipes freezing. This procedure is not recommended owing to the high inherent risks involved, coupled with a high installation cost. Only in special, localized situations would we recommend the installation of a shallow, insulated water line.

Another alternative considered was the use of an electric heater cable wrapped around the pipeline and in direct contact with the pipe. This method has been used with success on short lengths of exposed pipes in situations susceptible to freezing; however, to plan and build an entire distribution system based on this concept would not be economically feasible - given the alternative of installing the pipe below frost depth. It has a further disadvantage in that it cannot be used on plastic pipe or asbestos-cement pipe.

Where the water main and sanitary sewer parallel each other along a street or roadway, it is recommended that the water main and sewer be installed in a common trench, to minimize costs. This practice is acceptable to the Ministry of the Environment in locations where rock excavation is prevalent. Since the sewer is required to be installed at depth in any event, the water main can be installed in the same trench, below frost penetration level, at little additional cost. It is recommended that water mains be installed with 7 feet of cover on this project, as a general guide.

## Ground Storage Reservoir

The ground storage reservoir has been sized to provide peaking storage for Village I and other minor activities together with fire storage. Sizing therefore is as follows:

| | | | |
|---|---|---|---|
| Peaking | - | 20% of maximum day | $128,000 gal. |
| Fire | - | 1450 gpm for 8 hrs. | 522,000 gal. |
| Total Storage Provided | - | | $650,000 gal. |

This is approximately two days' storage for average day consumption which is satisfactory. It is not considered necessary to add additional storage volume to this figure for emergency storage considering standby power will be provided at the water treatment plant.

The storage reservoir facilities could be of dimensions 20' high by 90' long by 60' wide. Associated with this ground storage reservoir would be small high-lift pumping facilities for servicing the day lodge and small restaurant facilities at the top of the mountain. The chalet area south of the Village I could be serviced from the 10" dia. main supply line with pressure reduction.

Some difficulty was experienced in locating the ground storage reservoir. A flat area exists on the mountain at elevation approximately 1815. However, this location will provide a rather excessive pressure at the village area (elev. 1670 would be ideal). The pressure would be approximately 125 psi. However, further consideration could be given to this location at a later stage in design.

A 14" dia. water transmission main will be provided from the ground storage reservoir to Village I. The location of the ground storage reservoir is shown on Exhibit 4.

Internal Village I Water Mains

A system of internal village water mains has been shown on Exhibit 5. These water mains would be working pressure 150 psi mains. The maximum pressure in the low parts of the village will be approximately 60 psi. The water mains have been designed to provide a minimum of 20 psi at the hydrant at the highest or most remote point during maximum day consumption and fire flow. The water mains would be laid generally in a common trench with the sanitary sewer system.

These water mains would require 7' of cover to prevent freezing during winter operation. At first glance, the water mains appear excessively large. However, the main sizes are governed generally by fire requirements. A fire flow of 1450 gpm has been considered in the high density areas together with maximum day consumption requirements. 1450 gpm is approximately 90% of the Canadian Underwriters Association's requirements. While it could be argued that 90% of the CUA requirements are not required, considering the fire hazard in this location during summer, together with the density of population, we are hesitant to reduce the fire flow requirements further at this time unless further discussions are carried out with the Canadian Underwriters Association.

Fire hydrants and valves have been spaced to provide adequate fire protection and servicing of the water mains required. These are indicated on Exhibit 5.

Secondary Supply Lines

The secondary supply lines to serve the camp site area, trailer area, and single chalet area east of the Hobart Lake area would be laid on the lake bottom (a portion of the length beside the intake) and would continue along the trailer road, and easterly to the chalet area. The secondary supply line from the treatment plant, across the lake and serving the chalet area, is anticipated to be a 4" dia. plastic main. The camp site areas and trailer site areas would be serviced with 2" dia. plastic main to certain water tap areas. All these mains would be drained in winter and would be buried at a shallow level to prevent road traffic damage but not freezing damage. The water mains serving the single chalets would be 4" dia. mains and extend generally around the road areas. A 2" dia. main is proposed from the chalet area access road to the main access

road down to the Marina. A large water consumption of potable nature is not expected to be required at the Marina. Any boat washing facilities would be provided by local pumps from the lake rather than a potable water supply piped from the treatment plant location.

# SEWAGE WORKS FACILITIES

## Internal Collector System

An internal collector system for Village I area has been shown on Exhibit 6(a). The collector sewers are anticipated to be generally 8" dia. from a rough population and flow distribution in the village. These sizes would be verified at a later date when population distributions are more definite. It appears that a sewage pumping station will be required at the north end of the lake. Unfortunately, this is a main visitor area. The pumping station would be an underground type with access to the dry well only above ground. Standby diesel generator facilities would be provided unless duplicated by a general standby power facility for the village. The building which houses this diesel generator and controls would therefore require architectural treatment to blend in with the surrounding areas or alternatively housed in one on the adjacent buildings. The sewage pumping station would be equipped with an overflow which would be valved and used only in the event of an extreme emergency when regular power sources have failed and the standby power facilities should also fail for some reason. Extreme care must be taken of this small village lake to prevent any sanitary sewage entering the lake since the small flow, estimated on July 3 at approximately 30 gpm, cannot tolerate any raw sewage influent.

The sanitary sewer system has been designed to accept peak flows of four times average flows.

The sewage pumping station has been assumed to serve slightly over one-half of the main village. It is estimated that two pumps, one to serve as standby, each of 640 gpm capacity would be required.

A 10" dia. force main would be provided from the sewage pumping station to the gravity sewer on the east side of the village.

A 14" dia. collector gravity sewer would discharge from the east side of the village, southerly to a small watercourse where the sewage treatment plant would be located. The location of the gravity sewer is indicated on Exhibit 4.

Sewage Treatment Plant

At this point, some discussion is required on the servicing of the camp sites, trailers and single chalets in the Hobart Lake area. In summary, it was found that the single chalets in the Hobart Lake-Lady Evelyn area should be served by internal sanitary sewers. The camp sites and trailer sites on Hobart Lake should be served by holding tanks. It is recommended that all sewage be treated at the main sewage treatment plant south of main Village I. However, cost comparisons shown later indicate that a separate sewage treatment plant could be considered near the Marina-Chalet area for servicing of the single chalets near Lady Evelyn Lake and the camp sites and trailers near Hobart Lake. However, if all sewage is treated at the main sewage treatment plant, tanker truck haulage from the Hobart Lake area would be required. Our cost estimates indicate that truck haulage could be economical since a tanker truck would be required in any event to service the day lodge at the top of the mountain, service station and day lodge facilities south of the golf course area, camp site and trailer site area near Hobart Lake. Our reasoning is that holding tanks serving the chalet areas at Lady Evelyn Lake and southwest of Village I would be reasonable and less expensive. We do not consider pumping from the chalet area at Evelyn Lake to be a reasonable alternative considering the main sewage treatment plant location. However, this could be considered if a separate plant is located near the chalet area.

In summary, we have sized the main sewage treatment plant to service the main Village I and all other associated facilities. The incremental decrease in cost and plant capacity, should a second plant be preferred, is considered minimal. However, to provide a separate plant near Lady Evelyn Lake would involve considerable additional expense.

Design Criteria

| | | | | |
|---|---|---|---|---|
| Main Village | - | 4000 persons @ 80 GPCD | = | 320,000 GPD |
| Camp Area | - | 300 persons @ 3.3 GPCD | = | 1,000 GPD |
| Trailer Area | - | 300 persons @ 10 GPCD | = | 3,000 GPD |
| Single Chalets | - | Hobart Lake - 400 persons @ 40 GPCD | = | 16,000 GPD |
| Single Chalets | - | Southwest of Village I | = | 16,000 GPD |
| Marina | | | = | 750 GPD |
| Day Lodges, Service Station, Maintenance Bldg. | | | = | 3,000 GPD |
| | | TOTAL SEWAGE FLOW | = | 359,750 GPD |

We would therefore recommend a plant capacity of approximately 360,000 GPD. This plant would be of the prefabricated package type, supplied by Napanee Industries, Smith & Loveless, Aeroflow Corporation, Utility Technology, etc. This type of plant would be equipped with grit removable facilities which would be built in place, followed by the package plant. We would recommend an extended aeration activated sludge process for this plant for the following reasons:

a) Sludge disposal will be minimal. On the other hand, a high-

rate activated sludge plant or contact stabilization plant will result in large volumes of aerobically digested sludge which must be disposed of on land or sanitary land fill sites.

b) A plant of the extended aeration type can absorb shock loading much better because of the long retention times in the aeration tank.

c) Slightly less sophisticated operation is required for an extended aeration plant as compared to, say, a contact stabilization process.

The package plant would consist of comminution of raw sewage influent, bypass screen, aeration tank, final settling tank, chlorine contact chamber together with filtration facilities for tertiary treatment. This plant would produce an effluent with a BOD of approximately 5 to 7 PPM and suspended solids of approximately 3 to 7 PPM. Nutrient removal facilities would be included by feeding alum or ferric chloride into the aeration tank for settling of the precipitated phosphorus sludge in the final settling tank.

Associated with the treatment plant would be a control building for housing the blowers, office lab facilities, chemical equipment, and chlorination feed facilities. Sludge pumping facilities would also be provided in the control building. An equalizing tank to receive raw sewage hauled by tanker would also be provided.

Discussions with the Ministry of the Environment staff have indicated that the Ministry is unwilling to commit themselves that a plant in this location would be satisfactory without any knowledge of the nature and yearly flows of the watercourse. Discussions with Mr. J. Stasiak of the District Engineer's section, Sanitary Engineering Branch, Water Supply and Pollution Control Division, Ministry of

Environment, indicated that a tertiary plant with phosphorus removal and as proposed would likely be satisfactory but a definite commitment was not made at this time. It is recommended that this proposal be presented to the Ministry of the Environment and a request be made by the Ministry & Tourism to the Ministry of the Environment for assessment of stream flows and waste assimilation capabilities, etc. The decision on this matter is essentially a matter of policy consideration for the Ministry of the Environment and cannot be obtained by De Leuw, Cather at this time.

It is considered advisable to provide a certain cost for channel improvements of the stream downstream from the sewage treatment plant. The extent of any channel improvements, if required at all, is unknown at this time. This work would be of a minor nature, and would consist, primarily, of clearing, removal of debris and minor channelization.

Sewage Treatment - Lagoon Alternative

Various considerations for treatment of the domestic sewage were reviewed. Discussions with the Ministry of Environment have yielded that a recreational area such as this will require tertiary treatment with phosphorus removal before discharge to any watercourse. This treatment refers to a mechanical type sewage plant. The alternative would be to provide a holding lagoon for approximately 265 days retention with spray irrigation on land to dispose of the total annual flow. Spray times in this area are anticipated to be approximately 100 days. To provide a holding lagoon of approximately 65 acres (5-13 acre cells) we estimate a minimum cost of $450,000. In addition, a pumping station and spray area of approximately 170 acres minimum would cost an additional $200,000. The spray irrigation and holding alternative appears considerably more costly, therefore,

than the mechanical sewage treatment plant. Furthermore, the terrain is such that surface runoff to watercourses would be difficult to prevent. A further factor in the rejection of a lagoon system is the fact that clay sealer for lagoon berms and bottom is not evident in the area. If an imported clay sealer or membrane sealer is required, the holding lagoon cost could double. Spraying on the golf course would be impossible since spraying would be required simultaneously with the golf activity. The bacteriological hazards associated with the spraying of treated sewage on a golf course are open to question.

# STORM DRAINAGE SYSTEM

## Internal Village I System

An internal storm drainage system will be required. Generally, considerable storm drainage and storm sewers are expected to be required on the west side of Village I to accommodate runoff from the mountainside. The storm sewers would also receive water from rainwater leaders, basement drainage from the buildings, and paved walkways or road areas. We consider the E side of the village to require minimal storm sewerage. We anticipate five storm outlets into the village lake will be required. The parking area and N.E. leg of the village would discharge to the side of the mountain east of the village parking lot drainage. A detailed layout plan is not presented in the report but a preliminary drainage concept is presented in Exhibit 6(b). We have estimated approximately 6000 feet of storm sewer will be required and have carried a cost of $270,000 in our project costs for this item. Trailer sites, camp sites, chalets, etc. would have open swales and culverts provided as part of road construction.

Although five separate storm drain outlets are shown conceptually on Exhibit 6(b), every effort would be made during the actual design to minimize the number of outlets into the small lake. Moreover, these outlets would be underwater, for aesthetic reasons. We would investigate the feasibility of employing storm-water stilling basins to trap sediment and floating debris prior to discharge to the lake.

Along the storm drain system, properly designed catchbasins, utilizing sumps to trap sediment, would be employed. Every reasonable precaution should be taken to prevent undesirable matter from being discharged into the lake.

## TELEPHONE & HYDRO

### Telephone

As far as we can gather there will be no capital charges to the developer involved in the installation of telephone facilities to and in the Village. Presumably the capital costs incurred by the telephone company are recovered in service charges.

### Hydro

It is assumed that the power supply to the development will arrive overhead but that in the built-up areas such as the Village, the chalet areas, the camp and trailer areas, the power distribution lines would be buried.

Whether or not a capital charge is made to the development apparently depends on the policy of the power company in that area. If a charge is to be made it would be in the order of $40,000 per mile. In this respect the premium to be paid for a Village I location versus a Village II location would be approximately $40,000.

The average cost of underground power distribution is estimated to be $20 per linear foot of roadway in the Village and $10 per linear foot of roadway elsewhere including connections to the buildings. On this basis the underground power distribution costs are estimated to be:

| | |
|---|---|
| Village I | $80,000 |
| Single Chalets, South of Village | 45,000 |

| | |
|---|---|
| Single Chalets, Lady Evelyn Lake | $ 80,000 |
| Camp & Trailer Site | 25,000 |
| Marina | 15,000 |
| TOTAL | $245,000 |

## ROADWAYS AND OTHER CONSIDERATIONS

Although it was outside the original terms of reference, De Leuw, Cather was requested by the Architects to comment on the road and other aspects of the project.

### Main Access Road

Early consideration of the access road from the Marina westward to the villages indicated that the cost of the roadway would be determined principally by two elements:

(a) the design standards; and
(b) the amount of rock excavation.

Consequently it was decided to investigate the variation in roadway cost by varying the design standard of the roadway. Three roadway standards were investigated:

(i) Two 12' lanes, paved, with 8' gravel shoulders, 50 mph design speed.

(ii) Two 12' lanes, paved, with 8' gravel shoulders, 40 mph design speed.

(iii) Thirty-foot gravel surface, no shoulders, 40 mph design speed.

With a lower design speed, sharper horizontal and vertical curves and steeper grades are permissible. Consequently, grading quantities can be greatly reduced. Exhibits 7 & 8 indicate a possible plan and profile for the 50 mph alternative. The cost estimates for the three

alternatives to Villages I & II are given below. In each case the cost of the service road from the Village to the Day Lodge is also given. The service road can have steep grades and sharp curves.

| Alternative | Village I Cost | Village II Cost | Difference |
|---|---|---|---|
| Main Access Rd. (50 mph paved) | $2,107,000 | $1,119,000 | |
| Service Rd. | 246,000 | 445,000 | |
| | $2,353,000 | $1,564,000 | $789,000 |
| Main Access Rd. (40 mph paved) | $1,505,000 | $ 745,000 | |
| Service Rd. (30' gravel) | 246,000 | 445,000 | |
| | $1,751,000 | $1,190,000 | $561,000 |
| Main Access Rd. (30' gravel) | $ 933,000 | $ 479,000 | |
| Service Rd. (30' gravel) | 246,000 | 445,000 | |
| | $1,179,000 | $ 924,000 | $255,000 |

Internal Roads

Within the Village it is assumed that roads will be paved, with curb and gutter and lighting. In the single chalet, camp site and trailer areas, a 24-foot gravel lighted roadway is assumed.

For the Village particularly, the length of roadway involved is not known at this time. Four thousand feet of 36' roadway was assumed rather than attempting to estimate the lengths of varying roadway widths likely to be used.

| | |
|---|---|
| Village Roads: 4000' @ $55/ft. | $220,000 |
| Single Chalets, South of Village: 4500' @ $15/ft. | 67,500 |
| Single Chalets, Lady Evelyn Lake: 8000' @ $15/ft. | 120,000 |
| Camp & Trailer Sites: 4500' @ $15/ft. | 67,500 |
| Base of Mountain Parking Access: 1000' @ $15/ft. | 15,000 |
| Marina: 1500' @ $15/ft. | 22,500 |
| TOTAL | $512,500 |

The basic unit prices used in these cost estimates were:

| | |
|---|---|
| HL4 | $19.00/Ton |
| HL8 | $ 8.00/Ton |
| H.M.S.A. | $10.00/Ton |
| Gran. "A" | $ 3.00/Ton |
| Gran. "C" | $ 2.00/Ton |
| Earth Excavation | $ 1.50/c.y. |
| Rock Excavation | $ 3.50/c.y. |

Parking Areas

The parking areas should be designed in a manner to take advantage of the topography and retain as much natural vegetation as possible. The cost per space will depend on treatment and will vary from about $300 per space for gravelled, lighted lots to as much as $500 per space for paved landscaped lots with lighting. These average costs assume that 25% of the spaces would be equipped with power outlets for block heaters. For the purpose of estimating costs, paved lighted lots are assumed at $350 per space, the storm drainage costs having been included elsewhere.

Village II Location

From a servicing point of view, Village II location would still require water tranmission from the same location on Hobart Lake. A 10" dia. supply line would run northerly from the treatment plant to the access road, follow the access road into the main Village II. Ground storage could presumably be located on the mountain at El. 1230-1250. A saving of approximately $50,000 could be realized.

Sewage could be pumped southerly to the watercourse on which the plant for Village I is located or more likely pumped southeasterly to the effluent end of Sucker Gut Lake where a sewage treatment plant could be located. According to our rough estimates an additional $230,000 over and above Village I location would be anticipated to pump directly south the small watercourse alternative. The treatment location at the effluent of Sucker Gut Lake would cost an additional $300,000 over and above the cost for Village I location. The treatment requirements would remain constant. The internal village systems are assumed equal for Village I and Village II.

Storm drainage systems for Village I or II would presumably be equal in cost.

Servicing of any facilities on top of the mountain with water supply or the chalets south of the mountain would be extremely expensive. We would suggest an alternative location be selected if Village II should proceed rather than Village I.

Marina Location

From a study of the aerial photographs, it appears that the Marina is ideally located as proposed. We have no further comment on this.

## Camp & Trailer Sites

From a cursory study of the aerial photographs it would appear that the camp and trailer sites would be better located further to the north.

## Chalet Area - Lady Evelyn Lake Area

The area appears satisfactory, although the area which is suitable for development may be somewhat smaller than that shown on the Architect's drawing. We recommend servicing with water and internal sewers which discharge to two large holding tanks from which sewage is hauled by tanker to the main sewage treatment plant.

## Chalet Area - South of Village I

We recommend servicing with water mains and sewers. Holding tanks or pumping to the main sewage plant is possible for sewage disposal.

## Golf Course

A more suitable location has not been found. However, a considerable expenditure would be required to develop a golf course in this location. For watering the greens and fairways, we would propose a separate water pumping station from Handel Lake which would consist of a pumping station, and plastic shallow buried mains which would be drained during winter.

## Disposal of Solid Wastes

While not specifically included in the terms of reference, it is appropriate to mention that consideration will need to be given to the proper disposal of solid wastes from this development.

The method of waste collection would probably be most economically carried out by the use of a standard garbage packer truck operating on a regular pickup schedule.

The most feasible method of disposal would be the development of a suitable sanitary land fill operation. This operation should be within a few miles of the development site and should be adjacent to, but not visible from, the main access road. Also, it should be unobtrusive or hidden from the view of persons on the high points of the development site. Desirably, it would be located downwind (east) of the site area.

The sanitary land fill operation could be located in an old gravel pit, hillside site or valley site, provided a plentiful supply of earth fill was available to cover the dumped waste. Proper siting considerations would need to be taken to ensure that liquids leaching from the site would not be detrimental to the area.

A small bulldozer would be required at the site to carry out the grading and filling operations.

## Standby Power

Standby power generating sets will be required for certain basic functions in the overall development. Typical of these are: the sewage pumping station, the sewage treatment plant, the water treatment

plant and water pumping equipment. The cost estimates for these facilities include amounts for the provision of standby power facilities.

The need for additional standby generating capacity can probably be rationalized for certain other specialized areas, such as: a medical clinic, emergency lighting, electric heating and electric cooking in specific areas (large hotels), and similar applications. The cost of supplying standby power units would be included in the specific building costs.

It has been concluded that the provision of central standby power facilities for the whole Village is not a practical proposition.

# COST OF SERVICES INCLUDING ROADS

## 1. WATER SUPPLY SYSTEM

### Water Treatment Plant

| | | |
|---|---|---|
| 1000' of 14" dia. @ $50/ft. | $ 50,000 | |
| Low-Lift Pumping Station | 35,000 | |
| Package Plant - 716,000 GPD | 250,000 | |
| Building | 40,000 | |
| Clear Well - 30,000 gal. @ 40¢/gal. | 30,000 | |
| H.L. Pumps & Controls - 3 @ 223 GPM | 10,000 | |
| - 2 @ 25 GPM | 2,000 | |
| Standby Diesel Generator | 20,000 | $ 437,000 |
| **Feeder Main** - from Treatment Plant to Ground Storage Reservoir at El. 1670 approx. | | |
| 12,000' of 10" dia. @ $28/ft. | | $ 336,000 |
| **Ground Storage Reservoir** at El. 1670 approx. | | |
| 650,000 gal. @ 30¢/gal. | | $ 195,000 |
| **Transmission Main** - from Ground Storage Reservoir to Village I - 12" dia. | | |
| 375' in common trench with supply main @ $15/ft. additional | $ 5,600 | |
| 3130' to Village I in separate trench @ $33/ft. | 103,000 | $ 108,600 |
| **Internal Distribution System** | | |
| 320' of 14" dia. separate trench @ $33/ft. | $ 10,500 | |
| 330' of 14" dia. common trench @ $24/ft. | 7,900 | |
| 1170' of 12" dia. common trench @ $22/ft. | 25,800 | |
| 2610' of 10" dia. common trench @ $20/ft. | 52,200 | |
| Service Connections - 26 @ $150 each | 3,900 | $ 100,300 |

Secondary Costs - Camp Site & Trailer Site Areas

| | | |
|---|---|---|
| **Hobart Lake Crossing 4" dia.** | | |
| 1000' laid with intake @ $10/ft. | $ 10,000 | |
| 1400' separate line @ $30/ft. | 52,000 | |
| **Trailer Area** | | |
| 2000' of 4" dia. shallow bury @ $7/ft. | 14,000 | |
| 3000' of 2" dia. shallow bury @ $6/ft. | 18,000 | |
| **Camp Area** | | |
| 2000' of 2" dia. shallow bury @ $6/ft. | 12,000 | |
| **Chalet Area** | | |
| 8750' of 4" dia. main @ $7/ft. | 61,250 | |
| Service Connections - 100 @ $100 each | 10,000 | |
| **Marina** | | |
| 3130' of 2" dia. shallow bury @ $6/ft. | 18,750 | $ 196,000 |
| **Day Lodge - Golf Course Clubhouse - Service Station & Mtce. Bldg.** | | |
| 3000' of 2" dia. @ $9/ft. | | $ 27,000 |
| **Chalets - South of Village to 10" dia. Supply Main** | | |
| 7400' of 4" dia. shallow bury @ $7/ft. | $ 51,800 | |
| Service Connections - 100 @ $100 each | 10,000 | $ 61,800 |
| **Day Lodge - Top of Mountain** | | |
| 3500' of 2" dia. @ $10/ft. | | $ 35,000 |

TOTAL COST WATER SUPPLY SYSTEM $1,496,700

## 2. SEWERAGE SYSTEM

### Sewage Treatment Plant

| | | |
|---|---|---|
| Stream channel improvements | $ 20,000 | |
| Outfall Sewer - 200' @ $35/ft. | 7,000 | |
| 360,000 GPD tertiary plant with phosphorus removal facilities (incl. standby power) | 450,000 | $ 477,000 |

### 14" Dia. Gravity Collector Sewer from Village I to Sewage Treatment Plant

| | | |
|---|---|---|
| 5200' of 14" dia. @ $33/ft. | | $ 172,000 |

### Internal Sewers

| | | |
|---|---|---|
| 2690' of 8" dia. in common trench @ $18/ft. | $ 48,500 | |
| 290' of 10" dia. in common trench @ $19/ft. | 5,500 | |
| 860' of 12" dia. in common trench @ $21/ft. | 18,000 | |
| Force Main 10" dia. of 550' in common trench @ $17/ft. | 9,300 | |
| Service Connections - 30 @ $150 each | 4,500 | |
| Prefabricated SPS - with standby power & overflow | 40,000 | $ 125,800 |

### Secondary Sewer Systems

Chalet Area - Hobart Lake

| | | |
|---|---|---|
| 4700' of 8" dia. @ $18/ft. | $ 84,500 | |
| Service Connections - 100 @ $150 each | 15,000 | |
| 1 large holding tank - 20,000 gal. | 8,000 | |
| 1 small holding tank - 12,000 gal. | 6,000 | |
| Marina Holding Tank - 1 @ 2,000 gal. | 1,200 | |
| Trailer Area Holding Tank - 1 @ 6,000 gal. | 3,000 | |
| Camping Area Holding Tank - 2 @ 1,000 gal. | 1,400 | $ 119,100 |

**Note:** For an additional $100,000 a small 20,000 package plant could be possibly located between the chalet area and the marina, thus eliminating truck haulage for the chalet area and the marina. However, we do not recommend this alternative for reasons discussed in the body of the report.

Miscellaneous

| | | |
|---|---|---|
| Maintenance Building - Holding Tank - 1 @ 2,000 gal. | $ 1,200 | |
| Service Station - Holding Tank - 1 @ 10,000 gal. | 5,000 | |
| Day Lodge-Golf Clubhouse - 1 @ 6,000 gal. | 3,000 | |
| Day Lodge-Top of Mountain - 1 @ 6,000 gal. | 3,000 | $ 12,200 |

Chalets - South of Village I

| | | |
|---|---|---|
| Internal Sewers - 4700' of 8" dia. @ $18/ft. | $ 84,500 | |
| Service Connections - 100 @ $150 each | 15,000 | |
| 2 Holding Tanks @ 16,000 gal. each | 12,800 | $ 112,300 |

Note: It would appear feasible to provide one small sewage pumping station and a gravity sewer to the main sewage plant. The incremental cost increase anticipated would be $56,000.

TOTAL COST SEWERAGE SYSTEM $1,018,400

3. STORM DRAINAGE SYSTEM

| | | | |
|---|---|---|---|
| (i) | 4000' Internal Storm Sewers Village I @ $45/ft. | $180,000 | |
| (ii) | 2000' Parking Area & Outfall @ $45/ft. | 90,000 | $ 270,000 |

TOTAL COST STORM DRAINAGE SYSTEM $ 270,000

4. GOLF COURSE

| | | |
|---|---|---|
| Lawn Water System | $114,000 | |
| Pumping Station & Intake | 50,000 | $ 164,000 |
| TOTAL COST GOLF COURSE WATER SYSTEM | | $ 164,000 |

5. TELEPHONE

No capital costs involved.

6. HYDRO

| | | |
|---|---|---|
| Underground power distribution including connections to buildings | | |
| Village I. 4000' @ $20/ft. | $ 80,000 | |
| Single Chalets, South of Village 4500' @ $10/ft. | 45,000 | |
| Single Chalets, Lady Evelyn Lake 8000' @ $10/ft. | 80,000 | |
| Camp & Trailer Site 2500' @ $10/ft. | 25,000 | |
| Marina 1500' @ $10/ft. | 15,000 | $ 245,000 |
| TOTAL COST UNDERGROUND POWER DISTRIBUTION | | $ 245,000 |

7. ROADS AND PARKING

| | |
|---|---|
| Main Access Road | |
| 40 mph design speed, paved | $1,505,000 |
| Service Road to Day Chalet | |
| Gravel, low standards | $ 246,000 |

Internal Roads

| | | |
|---|---|---|
| Village I: 4000' @ $55/ft. | $220,000 | |
| Single Chalets: South of Village 4500' @ $15/ft. | 67,500 | |
| Single Chalets: Lady Evelyn Lake 8000' @ $15/ft. | 120,000 | |
| Camp & Trailer Sites: 4500' @ $15/ft. | 67,500 | |
| Base of Mountain Parking Access: 1000'@ $15/ft. | 15,000 | |
| Marina: 1500' @ $15/ft. | 22,500 | $ 512,500 |
| TOTAL COST ROAD SYSTEM | | $2,263,500 |

Parking

| | | |
|---|---|---|
| Village I: 2050 spaces @ $350 per space | $717,500 | |
| Base of Mountain: 500 spaces @ $350 per space | 175,000 | $ 892,500 |
| TOTAL COST PARKING | | $ 892,500 |

8. SUMMARY OF TOTAL COSTS

| | |
|---|---|
| Water Supply System | $1,496,700 |
| Sewerage System | 1,018,400 |
| Storm Drainage System | 270,000 |
| Golf Course Water System | 164,000 |
| Hydro Underground Power Distribution | 245,000 |
| Roads | 2,263,500 |
| Parking | 892,500 |
| GRAND TOTAL | $6,350,100 |

9. DISTRIBUTION OF COSTS BY LOCATION AND ITEM (in thousands of dollars)[1]

| | Water | Sewer | Storm | Hydro | Roads | Parking | Total |
|---|---|---|---|---|---|---|---|
| Village I | $1,176.9 | $ 774.8 | $270.0 | $ 80.0 | $1,725.0 | $717.5 | $4,744.2 |
| Single Chalets S.of Village | 61.8 | 112.3 | 3 | 45.0 | 67.5 | - | 286.6 |
| Single Chalets Lady Evelyn Lake | 102.25[2] | 113.5 | 3 | 80.0 | 120.0 | - | 415.75 |
| Camp & Trailer Sites | 75.0[2] | 4.4 | 3 | 25.0 | 67.5 | - | 171.9 |
| Day Lodge Top of Mountain | 35.0 | 3.0 | - | - | 246.0 | - | 284.0 |
| Marina | 18.75 | 1.2 | - | 15.0 | 22.5 | - | 57.45 |
| Other | 27.0 | 9.2 | 3 | - | 15.0 | 175.0 | 226.2 |
| TOTAL | $1,496.7 | $1,018.4 | $270.0 | $245.0 | $2,263.5 | $892.5 | $6,186.1 |

Notes: 1. Golf Course omitted.

2. Hobart Lake crossing shared equally by chalets and camps.

3. Storm Drainage included in road costs.

## 10. INCREMENTAL COST OF VILLAGE I OVER VILLAGE II

| ITEM | INCREMENTAL COST (+ more / - less) |
|---|---|
| Water | + 50,000 |
| Sewer | - 300,000 |
| Storm | Assumed Nil |
| Golf Course | Assumed Nil |
| Hydro | Assumed Nil |
| Access Road | + 760,000 |
| Service Road | - 199,000 |
| Internal Roads | Assumed Nil |
| Parking | Assumed Nil |
| TOTAL INCREMENTAL COST | + $311,000 |

## ALPINE SKIING

### GENERAL

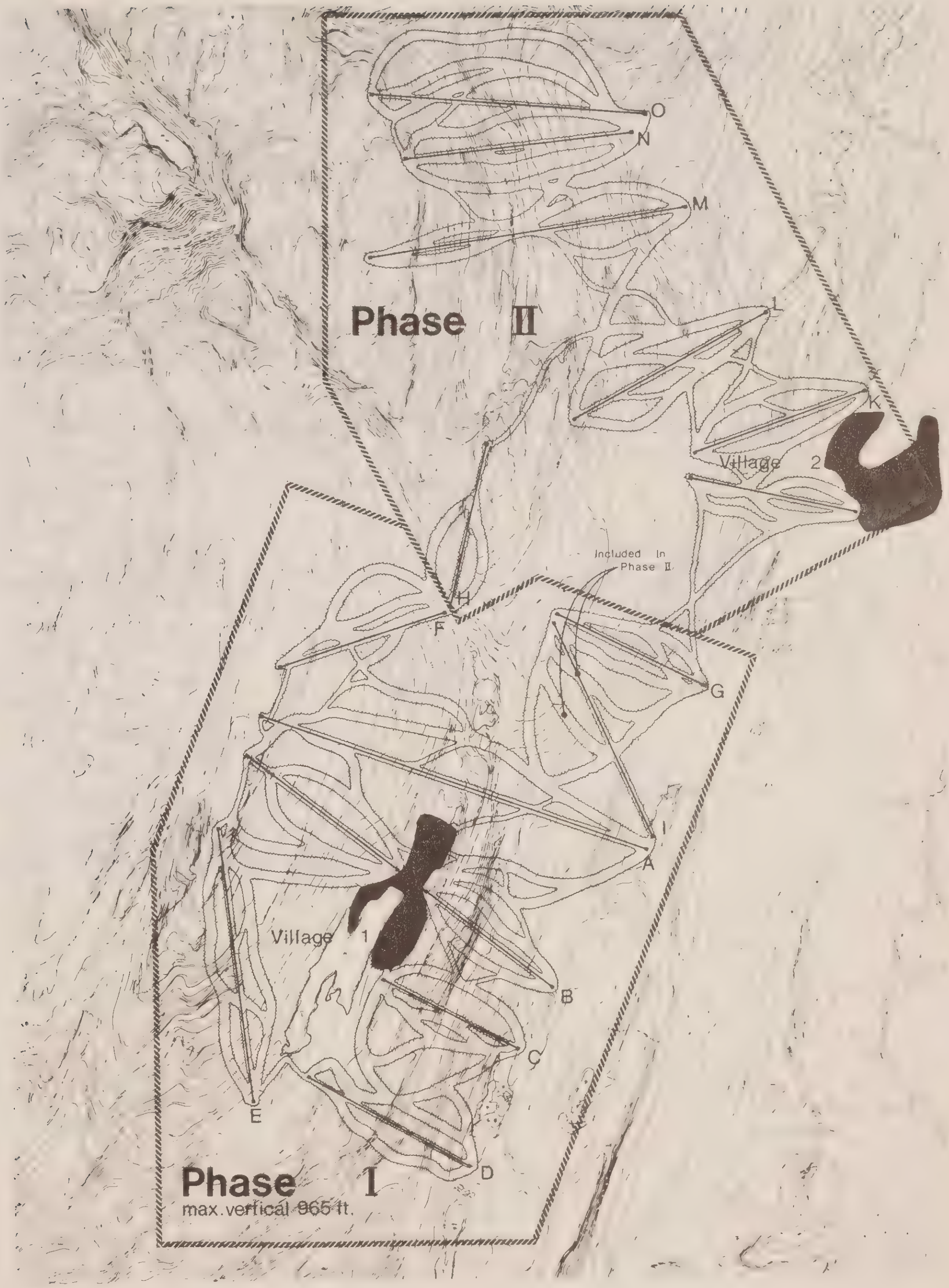
Reference to Drawing Nos. 4 & 17 should be made while reading this Brief. Drawing No. 17 indicates the ski-lifts and trails encompassed in each of Phases I & II. Drawing No. 4 indicates the possible ski potential of Maple Mountain.

### PHYSICAL ASPECT

In many respects the physical aspects of Maple Mountain are ideally suited for ski area development.

The exposure of the proposed Phase II trails is ideal being predominantly north-east. Phase I trails are less ideal being predominantly east south-east. The available vertical drop in Phase I & II is slightly greater than 1000' which is excellent in terms of Ontario skiing, indeed to our knowledge it is the highest in Ontario to date.

However, other physical aspects present imposing diff-iculties both with respect to design and construction of the ski facilities.




Ski-Lift Details - Phase I

| No. | Type | Vertical Rise In Feet | Horizontal Length In Feet | Capacity In Persons Per Hour |
|---|---|---|---|---|
| A. | Four Passenger Gondola | 920 | 4620 | 1200 |
| B. | Triple Chairlift | 825 | 4260 | 1800 |
| C. | Double T-bar | 330 | 1700 | 1200 |
| D. | Double T-bar | 295 | 2080 | 1200 |
| E. | Double Chairlift | 510 | 3230 | 1200 |
| F. | Double Chairlift | 545 | 1970 | 1200 |
| G. | Double Chairlift | 490 | 1850 | 1200 |
| | Total: 7 Lifts | 3915 | 19710 | 9000 |

## 17. Ski-Lifts & Trails

0 500 4000 feet

The topography is generally extremely steep at the various summits of the mountain with marginally gentle terminal runouts. The mid portions of the slopes are interspersed with long flats and excessively steep pitches. The steep summits and interim pitches are, with few exceptions, comprised of bedrock. The mid plateau and lake, which affords an excellent location for Village Site I, virtually bisects the available vertical drop.

Additionally there appears to be very little over-burden on the slopes which seem to be comprised of bedrock and large boulders.

In short, design of suitable ski slopes is difficult and development costs are expected to be high.

## SKI TRAILS

Notwithstanding these site difficulties, there is much excellent skiing available on Maple Mountain.

Phase I provides for approximately 12.5 miles of ski trails having characteristics as summarized on Table 3, attached. Ideally, one would hope for a larger proportion of intermediate trails and lower proportion of novice trails. Similarly there is a moderate shortage of beginner trails. However we do not consider these to be serious shortcomings in view of the proposed nature of the development.

The trail immediately to the north of Lift A is approximately one mile long and 920' high, being the longest and highest continuous run in Phase I. It is suitable for novice skiers which is considered to be an asset.

Interconnection between lifts, trails and Village Site I has been suitably provided.

Phase II provides approximately the same total length and area of ski trails as in Phase I. There will however, probably be a larger proportion of intermediate trails which is advantageous. Suitable connecting links have been provided between Phases I and II.

## SKI LIFTS

Phase I ski lifts (A to G inclusive) are summarized on Table 2 indicating that a total of seven lifts has been provided: one gondola, one triple chairlift, three double chairlifts and two double T-bars; which give a total up-hill capacity of 9000 persons per hour.

It should be noted that the chairlift I is not included in Phase I, as it will be required primarily in Phase II for quick and direct access thereto.

Similarly, but to even a greater degree, chairlift H will be required primarily as an alternate route to the Phase II ski area. Phase II provides for eight lifts having a capacity equal to or somewhat greater than, Phase I depending on the types of lift selected.

## SKI AREA CAPACITY

Phase I total ski area capacity as shown on Table 4 is in the order of at least 3000 persons per day and could on further study, be increased to 3500 persons with no increase in trails or numbers of lifts. This could be achieved by increasing the capacity of two or more individual double chairlifts at relatively little cost.

Gondola lifts are not generally considered to be the most economical mode of up-hill transportation as evidenced on Table 5, which shows the cost of one to be approximately 3 times the cost of a somewhat shorter triple chairlift. Furthermore the triple chairlift has a 50% greater capacity in terms of persons per hour. We have nevertheless included one 4-passenger gondola lift which not only provides a definite prestigious drawing attraction, but also provides obvious functional benefits for multi-seasonal uses, both advantages being of an immeasurable nature.

SKI AREA DEVELOPMENT COSTS

The estimated cost of development of the Phase I ski facilities is itemized on Table 5 and summarized below:

| | |
|---|---|
| A - Ski Lifts | $ 2,295,000.00 |
| B - Ski Trails | $ 1,792,000.00 |
| C - Hydro Supply For Ski Lifts | $ 75,000.00 |
| D - Initial Snowmaking | $ 200,000.00 |
| E - Engineering Allowance | $ 300,000.00 |
| Sub-Total | $ 4,662,000.00 |
| Contingency Allowance | $ 300,000.00 |
| Total Estimated Cost of Phase I Ski Facilities | $ 4,962,000.00 |

The foregoing provides for complete supply and installation of all ski lift equipment and trails including: minimal lift terminal shelters and control buildings only; snow-making equipment for the main hill north of the gondola lift and related connecting links only; and major recontouring required to achieve the stated proportion of various classifications of trails.

The estimate does not include operating equipment, particularly prime movers and related implements required for trail grooming, which for Phase I would cost approximately $75,000.00 - $100,000.00.

The estimate assumes that a service road system linking the lower terminals of all lifts will be constructed prior to lift construction and not as a part of the works included in this estimate. The estimate also provides for orders for lift purchases to be placed in early 1973. Ontario Sales Tax has not been included in the cost of equipment; Federal Tax has been included.

It should be noted that because of the somewhat more favourable topography, Phase II ski facilities would be expected to be less costly than Phase I facilities calculated in 1972 dollars.

TOTAL SKI AREA POTENTIAL

Although more detailed investigation and mapping is required to verify our opinion, we believe that additional suitable terrain exists on Maple Mountain north of Phases I & II, for additional development as indicated on Drawing 4.

The magnitude of the further potential has not been determined, but would be expected at least to equal Phase I.

BASIS OF OPINION

The opinions, designs and estimates contained herein are based on two cursory site inspections and mapping provided by others, and are therefore subject to the same degree of accuracy as is the information obtained therefrom.

PROJECT OVERVIEW

Although there are many natural shortcomings to the site, which are surmountable at high cost, we believe the other excellent and exciting characteristics make Maple Mountain worthy of serious consideration for the type and magnitude of multi-seasonal, recreation oriented project proposed by the Ontario Government. Furthermore, we believe that the <u>nature</u> of the proposed development is suitable in terms of the current trends in skiing, and indeed essential because of the dramatic lack of geographically suitable sites in Southern Ontario.

TABLE 2 - SKI LIFT DETAILS - PHASE I
MAPLE MOUNTAIN

| NO. | TYPE | VERTICAL RISE FT. | HORIZONTAL LENGTH FT. | CAPACITY PERSONS/HR. |
|---|---|---|---|---|
| A | Four Passenger Gondola | 920 | 4620 | 1200 |
| B | Triple Chairlift | 825 | 4260 | 1800 |
| C | Double T-Bar | 330 | 1700 | 1200 |
| D | Double T-Bar | 295 | 2080 | 1200 |
| E | Double Chairlift | 510 | 3230 | 1200 |
| F | Double Chairlift | 545 | 1970 | 1200 |
| G | Double Chairlift | 490 | 1850 | 1200 |
| | TOTAL: 7 Lifts | 3915 | 19,710 | 9000 |

TABLE 3 - SKI TRAIL DETAILS - PHASE I
MAPLE MOUNTAIN

| TYPE OF TRAIL | HORIZONTAL LENGTH LIN. FT. | AREA ACRES |
|---|---|---|
| Trails (125' wide) | 56,050 | 163.76 |
| Connecting Links (50' wide) | 6,475 | 7.43 |
| Skiable Lift Lines (80' wide) | 3,450 | 6.34 |
| TOTAL: | 65,975 | 177.53 |

| CLASS OF TRAIL | MAXIMUM SLOPE CRITERIA % | HORIZONTAL LENGTH LIN. FT. | % |
|---|---|---|---|
| Beginner | 15 | 3,000 | 4 |
| Novice | 25 | 34,130 | 52 |
| Intermediate | 40 | 20,145 | 31 |
| Expert | 40 | 8,700 | 13 |
| TOTAL: | | 65,975 | 100% |

TABLE 4 - SKI AREA CAPACITY - PHASE I
MAPLE MOUNTAIN

IN TERMS OF UPHILL FACILITIES - LIFTS

| | | |
|---|---|---|
| Uphill Capacity (at 4 runs/hr.) | - 2,250 persons | (75%) |
| Allow for Persons In and Around Buildings | - 750 persons | (25%) |
| TOTAL AREA CAPACITY: | - 3,000 persons | (100%) |

IN TERMS OF DOWNHILL FACILITIES - TRAILS

| | |
|---|---|
| Downhill Capacity (at 20 skiers per acre) | - 3,550 persons |

CONCLUSION:

Quite safe to conclude that the Phase I Ski Area Facilities are capable of handling 3000 skiers per day. The trails could accommodate an increase of approximately 10 - 20% in lift capacity over that proposed herein.

TABLE 5 - COST ESTIMATE OF SKI FACILITIES
PHASE I - MAPLE MOUNTAIN

"A" - SKI LIFTS

| | | | |
|---|---|---|---|
| A - Gondola - 4 passenger | - | $1,205,000.00 | |
| B - Chairlift - Triple | - | $ 416,000.00 | |
| C - T-Bar - Double | - | $ 64,000.00 | |
| D - T-Bar - Double | - | $ 83,000.00 | |
| E - Chairlift - Double | - | $ 216,000.00 | |
| F - Chairlift - Double | - | $ 157,000.00 | |
| G - Chairlift - Double | - | $ 154,000.00 | |
| | | | $2,295,000.00 |

"B" - SKI TRAILS

| | | | |
|---|---|---|---|
| 1 - Highest Cost - 10 Acres | @$46,000.00/acre | $ 460,000.00 | |
| 2 - High Cost - 20 Acres | @$25,000.00/acre | $ 500,000.00 | |
| 3 - ModerateCost - 40 Acres | @$10,000.00/acre | $ 400,000.00 | |
| 4 - Low Cost -108 Acres | @$ 4,000.00/acre | $ 432,000.00 | |
| 178 Acre Total | | | $1,792,000.00 |

| | | |
|---|---|---|
| "C" - HYDRO SUPPLY FOR LIFTS | - | $ 75,000.00 |
| "D" - INITIAL SNOWMAKING | - | $ 200,000.00 |
| SUB-TOTAL: | | $4,362,000.00 |

TABLE 5 - COST ESTIMATE OF SKI FACILITIES
PHASE I - MAPLE MOUNTAIN - Continued......

| | |
|---|---|
| BALANCE BROUGHT FORWARD: | $4,362,000.00 |
| "E" - ENGINEERING ALLOWANCE | $ 300,000.00 |
| SUB-TOTAL: | $4,662,000.00 |
| CONTINGENCY ALLOWANCE | $ 300,000.00 |
| TOTAL COST PHASE I SKI FACILITIES | $4,962,000.00 |

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| | |
|---|---|
| BF-RED | BL-GOLD |
| BG-BLACK | BQ-PALM GREEN |
| BD-LT. GREY | BX-EXECUTIVE RED |
| BP-LT. GREEN | BR-BROWN |
| BU-LT. BLUE | BA-TANGERINE |
| BY-YELLOW | BB-ROYAL BLUE |

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